

AUSTRALIA IN THE WAR OF 1939-1945

SERIES THREE

AIR

VOLUME III

AIR WAR AGAINST GERMANY AND ITALY
1939-1943

AUSTRALIA IN THE WAR OF 1939-1945

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GERMANY AND ITALY
1939-1943

by

JOHN HERINGTON

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CONTENTS

Page

Preface xiii

Chapter

1	THE FIRST TEN MONTHS	1
2	THE BATTLE OF BRITAIN AND THE GERMAN BLOCKADE	33
3	FIRST LIBYAN CAMPAIGN	52
4	GREECE, SYRIA AND THE WESTERN DESERT	76
5	PROBLEMS OF THE EMPIRE AIR SCHEME	107
6	FIGHTER SQUADRONS IN 1941	129
7	DEVELOPMENT OF THE AIR OFFENSIVE AT SEA: MAY TO DECEMBER 1941	147
8	BOMBER COMMAND: JUNE 1941 TO FEBRUARY 1942	168
9	SECOND LIBYAN CAMPAIGN	193
10	THE STRUGGLE IN THE MEDITERRANEAN: MARCH TO SEPTEMBER 1942	220
11	THE AIR WAR AT SEA: JANUARY TO SEPTEMBER 1942	262
12	EXPERIMENTS IN BOMBING TECHNIQUE	298
13	FIGHTER COMMAND IN 1942	336
14	AFRICAN CAMPAIGNS: SEPTEMBER TO DECEMBER 1942	356
15	CONQUEST OF TUNISIA	385
16	THE CRISIS IN THE ATLANTIC	414
17	EARLY PATHFINDER RAIDS	446
18	THE RADAR BOMBING OFFENSIVE, 1943	475
19	FIGHTER COMMAND: JANUARY TO SEPTEMBER 1943	502
20	NATIONAL ASPIRATIONS	523
21	THE INVASION OF SICILY	560
22	HAMBURG—THE LAST RAIDS ON ITALY—THE STRUGGLE AGAINST NIGHT FIGHTERS	581
23	THE HOLDING CAMPAIGN AT SEA, 1943-44	609
24	BERLIN AND OTHER LONG-DISTANCE RAIDS	635
APPENDIXES:		
1	British, American, German, Italian and French Service Aircraft, 1939-45	664
2	List of Abbreviations	698
INDEX		701

Sicily: Castelvetro airfield, April 1942	238
Sergeant Wood and Warrant Officer Spence: desert trek, 1942	239
Mail time in the Western Desert	239
Hudson of Coastal Command attacking shipping, April 1942	270
Attack on <i>Prinz Eugen</i> , May 1942	270
Attack on <i>U71</i> , June 1942	271
Attack on <i>Munsterland</i> , May 1942	302
No. 53 Squadron R.A.F.: in the U.S.A., November 1942	302
Damage at Renault works, March 1942	302
Damage at Renault works, March 1942	302
Rostock: damage, March 1942	302
Saarbrücken: damage, July 1942	302
Düsseldorf: damage, July-August 1942	303
Mainz: damage, August 1942	303
Attack on Philips' factory, December 1942	334
Attack on Philips' factory, December 1942	334
No. 456 Squadron: Beaufighter, 1942	335
No. 457 Squadron: Spitfire, 1942	335
No. 454 Squadron: Soccer match, 1943	398
Australian Rules football, Cairo, 1943	398
No. 454 Squadron: airmen at lunch, 1943	399
No. 1 Air Ambulance Unit: evacuation of wounded	399
Padre Davies conducts service, Gethsemane, December 1943	430
No. 3 Squadron interior of operations van, 1943	430
Instrument panel of Beaufighter	430
Sunderland alights on Angle airfield, May 1943	430
R.A.F. Station Mount Batten in wind storm, January 1943	430
No. 461 Squadron: Sunderland	430
Attack on <i>U106</i> , August 1943	431
Essen: damage near Krupps, March 1943	462
Mohne dam: breached, May 1943	462
Remscheid: damage, July 1943	463
Hanover: damage, October 1943	463
Cologne: damage, July 1943	494
No. 453 Squadron: fitters at work	495

ILLUSTRATIONS

	<i>Page</i>
No. 10 Squadron: original aircraft captains, 1939	14
No. 3 Squadron: disembarking in Egypt, 1940	14
Attack on <i>U26</i> , July 1940	15
German aircraft over London, September 1940	15
Battle of Britain: Flight Lieutenant Walch's combat report	46
No. 10 Squadron: working party after air raid, November 1940	46
R.A.F. Station Mount Batten after air raid, November 1940	46
No. 3 Squadron: Gladiators returning, January 1941	46
No. 3 Squadron: pilots, January 1941	46
Sidi Rezegh airfield, January 1941	47
Hurricanes in northern Palestine	47
No. 3 Squadron: pilots, Syrian campaign	78
No. 3 Squadron: Tomahawks over Syria, July 1941	78
No. 3 Squadron: living conditions at Rosh Pinna	78
No. 3 Squadron: refuelling a Tomahawk, Western Desert, 1941	78
Barracks at Pembroke Dock, 1940	79
Dug-in camp in Western Desert, 1943	79
Torpedoed tanker	110
United Kingdom: first Australian E.A.T.S. pilots arrive, 1940	110
R.C.A.F. Station Uplands	111
Australians at Uplands	111
No. 452 Squadron: Spitfires taking-off, September 1941	142
Flight Lieutenant Finucane, Sergeant Chisholm and Squadron Leader Bungey, September 1941	142
No. 452 Squadron: pilots, late 1941	143
No. 10 Squadron: Sunderland taking-off	174
No. 10 Squadron: early-type anti-submarine bombs	174
Plymouth on fire, April 1941	175
No. 50 Squadron R.A.F.: Hampden, February 1942	206
No. 50 Squadron R.A.F.: Hampden about to take-off, February 1942	206
Hampden, Wellington and Whitley aircraft	207
No. 455 Squadron: Austin's crew, 1942	207
Malta: Ta Kali airfield, April 1942	238

No. 456 Squadron: Mosquito fighter in flight	495
No. 452 Squadron: Air Marshal Williams' inspection	526
Signing the agreement to continue the E.A.T.S., April 1943	526
No. 450 Squadron: Kittyhawks at Malta, 1943	527
Nos. 3 and 450 Squadrons: Kittyhawks taxi-ing, 1943	590
No. 450 Squadron: ground staffs, Sicily, 1943	590
Bomber Command airfield	591
No. 460 Squadron: Lancaster bomb load, 1943	591
Attack on <i>U426</i> , January 1944	622
No. 463 Squadron: rear turret of Lancaster	622
No. 464 Squadron: mechanics working on Ventura aircraft	622
No. 467 Squadron: ground crew at work	622
Air Chief Marshal Harris visits Binbrook, 1943	622
No. 460 Squadron: commanding officers, 1943	622
No. 460 Squadron: Lancaster in flight	623
No. 466 Squadron: Halifax in flight	623
Bomber Command: operational briefing	638
Bomber Command: aircrew changing into flying clothing	638
Bomber Command: de-briefing	638
Bomber Command: in sergeants' mess on return from raid	638
Officers' mess, Waddington	638
No. 467 Squadron: flight party	638
No. 460 Squadron: Tasker's crew, 1943	639
No. 466 Squadron: McDonald's crew, 1944	639
Berlin: Dr Goebbels checks air-raid damage	654
Berlin: detail of damage round Tiergarten, February 1944	654
Wrecked Halifax: Germany, 1944	655
Wrecked Lancaster: Germany, 1944	655

MAPS

	<i>Page</i>
Coastal Command: United Kingdom and the Bay of Biscay	13
Photographic Reconnaissance: December 1940-February 1941	31
Areas in the Bay of Biscay where all enemy shipping might be attacked	42
Airfields in the Nile Delta	58
First Libyan Campaign	61
Greece and Crete	81
Syria	90
Fighter Command: Australian activities, 1941	132
Planned air patrols in the Bay of Biscay, summer 1941	153
The effect of anti-U-boat air effort in the Western Approaches: June-December 1941	164
Operational areas of <i>Luftwaffe</i> commands, June 1941	175
Bomber Command: Location of R.A.A.F. bases and R.A.F. emergency airfields	179
Phases of the Second Libyan Campaign	203
Agheila-Matruh	212
Gazala-El Alamein	233
The influence of air power over the Mediterranean, September 1942	258
Air cover for Atlantic convoys, 1942	270
Anti-U-boat patrols in the Bay of Biscay, April 1942	275
Coastal Command: North Sea and Norway	278
Anti-U-boat patrols, summer 1942	282
Covering operations for the Russian convoys, 14th-19th September 1942	296
Bomber Command: Principal Australian targets	318-9
Fighter Command: Australian activities, 1942	342
East Africa	357
British front, 23rd October 1942	369
The Final African Campaign	399
Western Mediterranean	412
Operations in the Bay of Biscay: February-June 1943	423
Operations in the Bay of Biscay: June-August 1943	437
Ruhr	480
Fighter Command: Australian activities, 1943	504
Sicily and southern Italy	565
Bomber Command: Targets in northern Italy	590
Phases of the U-boat war: September 1939-April 1944	630-1
Location of aircraft during the Bomber Command attack on Magdeburg, 21st-22nd January 1944	656-7

DIAGRAMS

	<i>Page</i>
Air support control communications, late 1941	194
Methods of attacking U-boats with depth-charges	426

GRAPH

Bomber Command: estimated accuracy of night-bombing of German cities (excluding Berlin)	446
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PREFACE

THE Australian contribution to air fighting against Germany and Italy consisted in the allocation of a large number of individuals for virtual incorporation within the Royal Air Force rather than the provision of self-sufficient units to work in cooperation with the major force. Admittedly, in consequence of the deep-seated desire of all Dominions that men should be identified with their homeland, it was intended from the beginning that these individuals should be grouped as soon as possible into compact national formations. The military reverses of the first years of war, the shifting emphasis of air operations themselves, the geographical spread of air action, the failure in advance to appreciate the administrative difficulties involved, and the perils which faced Australia in the Pacific and caused reorientation of her war effort, all intervened to prevent any neat and satisfactory solution. Consequently although there was no lack of good will on either side, arrangements invariably lagged behind events, and apart from three regular units of the Royal Australian Air Force and seventeen temporary squadrons of that Force which served in Europe, Australian airmen were spread among more than 500 squadrons of the Royal Air Force. At some time or other one or more Australians served with practically every combatant air squadron.

The spreading, in both time and space, of a comparatively small force among so many major and minor combatant units presents a problem of narration which has, perhaps, never before been attempted on this scale.

The first difficulty encountered was one of research, because at no time did even half the Australian airmen in this theatre of war serve with units which were required to forward even skeleton records direct to Australian authorities. The task of identifying, locating and extracting significant details of Australian deployment was undertaken by a small group of officers, N.C.O's and civilians who worked in London between 1945 and 1948. The continued existence of this research party was frequently in danger, and it never had sufficient strength or clerical assistance to do more than secure details obviously desirable. Great assistance was given by Mr J. C. Nerney of Air Historical Branch of the Air Ministry, not only in providing office space, but also in making records available to us even at a time when his own staff might require them. Mr Nerney was also very generous in giving his own time and valuable guidance to researchers in their task of fitting this heterogeneous mass of details into patterns conforming to the main trends of air warfare. Even the task of extracting details, however, was by no means simple because no thought was originally given to the likelihood that British squadron records would become important source books for Dominion authorities. It was not until late in 1943, consequent upon a policy decision evoked by the wide spread of airmen trained under the Joint Air Training Plan, that Royal Air Force operational record books began

consistently to identify Dominion personnel by their nationality and service numbers.

The standard of compilation of these records also varied greatly, although in general they compared favourably with similar Australian records. Narrators were also constantly faced with the problem familiar in law courts that they were unable to cross-examine a document to establish truth; they either had to accept or reject it. Difficulties, especially those which arose out of the less satisfactory records of 1941 and 1942, could not be resolved by reference to the airmen who might have been involved, because a very high proportion of them were dead and the remainder had been repatriated to Australia. Checking of detail was pursued in any way possible, even when it entailed a relatively large expenditure of time and effort. This checking has continued in Australia and it is now probable that omissions rather than errors impair the records collected by this research group. While acknowledging with deep gratitude the conscientious work done by all who were connected with this project, my thanks and those of the reader should go especially to Flight Lieutenant R. S. Spear and his assistant, Sergeant R. Ward, who undertook the many problems of research relating to the Middle East and Mediterranean campaigns.

The second difficulty caused by wide geographical dispersal of Australian airmen became more and more acute as the details of their activities were laboriously compiled. The variety of individual Australian experience is virtually coextensive with everything which was undertaken in the air from mid-1941 onwards. In all campaigns of the war assistance from the air was constantly demanded for all major and many minor needs, and air power was drawn inevitably to the centres of pressure. Units, changing their aircrews with a rapidity which appears fantastic compared with army or naval practice, remained fairly constantly in the front line; and incident, although perhaps minor in importance and repetitive in character, was continuous. Australian squadrons, crews or individual airmen took some part in practically all noteworthy events. The problem thus became one of selection and of attempting to do equal justice to all involved. There was a temptation to confine the story to the activities of Australian squadrons formed for service in this theatre. This would have enabled a fairly compact story of some of the major phases of the war but would have entailed the double falsity of ignoring more than half of the total Australians actually in the area, and of recording the history of units which, though Australian in name and law, were frequently of very mixed character. The compromise which has finally been adopted—to tell the story chronologically within each main command, with interest concentrated on Australian squadrons, but to include the main activities of dispersed personnel—has many weaknesses from an historical viewpoint, but it does fulfil the particular needs of an Australian war history.

Australians had no part in formulating strategy or tactics, nor were they organised in units larger than single squadrons. The whole direction

of the war which gives meaning to the effort of Australian airmen had to be sought among records and documents not in the possession of the Australian Government. This situation entails another departure from the ideal because while Australians were so ubiquitous that reference to their activities in all areas at all times is necessary, they were such a small part in relation first to the Royal Air Force and later to the Anglo-American air forces engaged that it is impracticable to give adequate consideration to every point of policy and circumstance which affected them. This history, then, does not purport to tell the complete history of air warfare in Europe and the Middle East but only why, when, where and in what degree Australian airmen were involved in such warfare.

Two difficulties must be recognised; on the one hand of submerging a small but significant force by setting it too sharply in contrast with the whole effort to which it contributed, and on the other of giving its activities a purely episodic character through failure to bring out the strategy which gave them significance. The full picture may be dimmed or distorted by failure to refer to other events which were important in themselves but had no precise reference to Australian activities. For two other circumstances the author makes no apology. Firstly, the choice of words is aimed to please not the military expert but the citizen, although some of the generalisations enforced by lack of space may offend both. Secondly, events and decisions are sometimes deliberately described as they were made known to the men at the time.

One aspect which will probably be disregarded in other histories but which is of great importance to Australia and is accorded some considerable space is the story of the composition of the overseas force. In particular the obvious disparity between the intentions of the Australian Government and the eventual distribution of airmen is depicted. In the event neither the "fully compact and easily identifiable" force desired by Australia, nor the completely integrated British Commonwealth Air Force advocated by some, was realised. There are lessons here to be learnt for future emergencies. In addition some consideration is given to the needs and aspirations of the airman as a human being and the arrangements made to satisfy those needs.

As it is possible that at the time of publication this may be the first account of one national contribution to the air warfare against Germany and Italy there are some further considerations for the reader. Although, naturally, emphasis lies continuously on Australian exploits, an attempt has been made at frequent intervals to point out that, in most cases, contribution to the total war effort was very small, and even at the decisive level of operations was a mere fraction. It is for this reason that the author has prepared frequent tables of bombing operations, so that the eye, bemused by constant repetition of Australian achievement—and Australian faults—may redress the bias in the record by quick reference to the actual proportion of the total effort. These tables are basically derived from individual raid reports made during or soon after the war, checked and amended where possible. Their principal value is to depict

the pattern of the whole offensive, and of Australian contribution to it; and to give some comparison of estimated determination in seeking out and bombing targets, and of losses sustained, between Australian squadrons and the whole force. As a measure of intention and of applied effort they may also give a rough guide to the efficacy of bombing under various conditions; but as they do not include raids in which Australian squadrons did not engage, they do not purport to be in any way final or comprehensive.

Special reference must also be made to the question of claims of damage inflicted on the enemy. In a fast-moving action covering a large area of sky it was extremely difficult for fighter pilots to assess the true results of their combat. Sometimes pilots were seen parachuting to earth, sometimes aircraft were actually seen to crash out of control on land or in the sea—but there was always the danger of confusing friend and foe. Claims could be duplicated when several pilots attacked one enemy aircraft and in good faith each made a report which in time and space made it appear that each had taken part in a separate action. In only a very small percentage of cases was incontrovertible evidence of enemy loss available. It was inevitable, perhaps, at times of great activity when many claims were under consideration, that the human factors of enthusiasm and inability to give adequate considerations to each incident resulted in many borderline and duplicated claims being officially recognised. Since the war enemy records have made it quite clear that British wartime figures were nearly always inflated, but in varying degrees.

This problem can be fairly readily resolved in a general history by stating British claims over a period with actual enemy losses in parentheses, but this is impracticable in this sectional account. It would merely introduce new absurdities to apply an average factor to Australian claims and then make arbitrary selection of incident from the claims of many individuals in each period.

The reader is therefore warned that the incidents related in the text are based for the most part on the wartime assessments. Footnotes have been employed on occasions to emphasise this, and the clumsy expedient of reiteration of "claim", "apparently", "credited with" has been liberally but not universally used. Wartime combat reports and assessments still give the best reflection of the offensive spirit, general fighting qualities and possible success of each individual. The precise tally of aircraft shot down should be regarded as merely coincidental to the main task of doing comparative justice to the Australian airmen and should be applied very cautiously to any other context.

Fortunately the task of evaluating the results of air attack against enemy naval and merchant shipping has proved much simpler because the fate of each vessel can be decided, for the most part from enemy records. When a number of aircraft attacked a single ship, however, it is still impracticable to establish definitely which was the vital torpedo, bomb or other weapon, and this particular difficulty is especially apparent with the adoption of wing-strike tactics against enemy shipping. The author is especially

indebted to Captain D. V. Peyton-Ward, R.N., of the Air Ministry's Air Historical Branch, who has furnished valuable information concerning attacks against U-boats and shipping, and whose generous guidance has rectified many errors of fact and interpretation in the original text concerning Coastal Command operations. For events in the Mediterranean reliance has been placed in Allied and enemy records of shipping losses.

Some of the author's indebtedness in the research and drafting stages has already been indicated. To the General Editor, he, in common with all the other writers, owes the inestimable boons of complete sympathetic support, valuable advice and criticism which in no way limited the writer's freedom, and special help in the matter of sources, scale and style. In the final long-drawn-out labours of compilation, checking, arrangement, indexing, planning of maps and illustrations and a host of other essential details, he owes much that is most successful to Mr W. R. Clark, who for some years has acted as literary assistant to the three air writers and who has gently but firmly eliminated errors and side issues. The maps and diagrams were all drawn by Mr Hugh Groser. In more general fashion members of the understaffed Historical Section of the Royal Australian Air Force Headquarters have shown consistent enthusiasm and ability in determining many facts which, because they were each relatively unimportant in themselves, were very hard to trace.

The author himself was an aircrew trainee under the Empire Air Training Scheme, left Australia in mid-1941 and did not return until the end of 1947. His wartime experience consisted of operations as a pilot with a Royal Air Force flying-boat squadron at Gibraltar; instructional duties at a flying-boat operational training unit; Intelligence duties with a Royal Australian Air Force squadron; education staff duties at Overseas Headquarters in London; and finally (extending until repatriation) historical research.

J.H.

*Melbourne,
15th July, 1953*

CHAPTER 1

THE FIRST TEN MONTHS

ON 8th September 1939, in outlining the most effective means of Australian participation in Empire defence, the United Kingdom Government postulated that the main weakness of the Allies vis-à-vis Germany was in air strength. The most urgent requirement was stated to be "a steadily increasing supply of pilots, air observers, wireless-telegraphy operators and air gunners" from which "ultimately the Commonwealth would no doubt wish that complete Australian units (would) come into being and should in turn be amalgamated into an Australian contingent".

This proposal entailed quantitative expansion of an existing arrangement by which approximately 20 per cent of pilots of the Royal Air Force were recruited from British communities outside the United Kingdom. For some years previously the Royal Australian Air Force had trained annually at Point Cook fifty pilots to serve with the R.A.F. and then to revert to the R.A.A.F. Reserve. Other Australians had been received directly into the R.A.F. either on permanent or short-service commissions as early as 1920, and in increasing numbers since 1935. These arrangements had been of great mutual benefit in peacetime but they were not in accord with the innate desire that in war Australians should serve from the outset in organised, compact and easily-identifiable national formations. Thus the swift success of the German Army and Air Force in Poland led the Australian Government, now hopeful that no immediate crisis threatened in the Pacific, to approve on 20th September an Australian air expeditionary force of six squadrons to proceed overseas before the end of the year.¹

This proposed expeditionary force was a very large contribution in relation to the trained airmen then available in Australia, and the willingness to dispatch it exemplified both the determination of Australia to carry the fight to the enemy and the appreciation that air fighting would play a prominent part in the forthcoming struggle. Group Captain De La Rue² was chosen on 9th October to command this force which was considered "the means by which Australia could contribute more effectively than by any other in the same time". This was admittedly an immediate and short-range policy until more airmen could be trained to form a more powerful Australian contingent, but could ensure from the beginning a significant nucleus around which orderly development would have been possible. Further consideration of the plan, however, revealed not only that it would

¹ On 4 Oct 1939 War Cabinet defined the AAEF as:

HQ Field Force R.A.A.F.			
1 (Fighter) Wing	2 (Bomber) Wing	3 (Bomber) Wing	1 Air Store Park
HQ	HQ	HQ	1 M.R.S.
7 Sqn	1 Sqn	16 Sqn	HQ Base Area
15 Sqn	8 Sqn	17 Sqn	Base Depot

² Air Cmdre H. F. De La Rue, CBE, DFC. (1915-18: RNAS and comd 223 Sqn RAF.) Comd RAAF Sqn Richmond 1937-40; AOC Western Area 1940-42; Insp RAAF Admin 1942-46. Regular air force offr; of Kew, Vic; b. Auburn, Vic, 13 Mar 1891.

absorb an undue proportion of men urgently required to train new recruits, but that from Australian resources six squadrons could not be equipped with aircraft capable of fighting on equal terms against German types. The aircraft held by existing R.A.A.F. squadrons (Demons, Sea-gulls and Ansons) were obsolescent, while the planned replacements of Wirraway fighters and Hudson bombers would come forward too slowly. These difficulties concerning men and aircraft were increased on 6th October when the War Cabinet acceded to the request of the British Dominions Office for the retention in England of Sunderland aircraft ordered to equip two R.A.A.F. long-range reconnaissance squadrons. In addition to releasing these aircraft it was further decided to send to England as soon as possible sufficient air and ground crews to form a complete Australian squadron to operate the flying-boats under the control of Coastal Command of the R.A.F.

Fresh counter-proposals concerning the development of the Empire's maximum strength in the air were contained in a Dominions Office cable dated 26th October proposing to train annually in oversea Dominions 20,000 pilots, 20,000 air gunners and 12,000 navigators for service with the R.A.F. This plan represented a tenfold increase in pre-war training figures and could not be achieved in the United Kingdom where weather conditions, lack of airfields, wartime restrictions such as blackout and passive defences, as well as direct enemy interference, all imposed formidable handicaps. Previous R.A.F. requests for training facilities in Canada had not been granted, but at informal talks between the Dominions' High Commissioners this had for some time been agreed as theoretically desirable because Canada would be free from direct conflict, was conveniently situated from a transport viewpoint, and possessed, in addition to her own virile secondary industries, access to the tremendous material potential of the United States of America. Accordingly, within a week of the declaration of war, Mr Bruce,³ the Australian High Commissioner in London, was authorised by his colleagues to discuss this project with the R.A.F., which accepted wholeheartedly the High Commissioners' plan. The Australian War Cabinet endorsed the proposal in principle on 5th October and agreed to send an air mission comprising the Minister for Air (Mr Fairbairn⁴), Wing Commander Jones,⁵ Mr C. V. Kellway and Mr R. E. Elford to confer at Ottawa with representatives of the United Kingdom, Canada and New Zealand. Mainly for financial reasons Australia decided that seven-ninths of her quota of airmen should be fully trained entirely within her own resources and the remainder should receive partial training before being sent to Canada. The initially simple plan thus split into a modified scheme of linked training organisations in Canada,

³ Rt Hon Viscount Bruce, CH, MC. (Lt Worces Regt 1915; Capt Royal Fus 1916-17.) Prime Minister of Aust 1923-29; High Commr in London 1933-45; b. Melbourne, 15 Apr 1883.

⁴ Hon J. V. Fairbairn (RFC 1916-17). Min for Air 1940 and Civil Aviation 1939-40. Grazier; of Derrinallum, Vic; b. Wadhurst, Surrey, Eng, 28 Jul 1897. Killed in aircraft accident 13 Aug 1940.

⁵ Air Marshal Sir George Jones, KBE, CB, DFC. (1st AIF: 9 LH Regt 1915; 4 Sqn AFC 1916-19.) Asst Chief of Air Staff 1939-40; Dir of Training RAAF 1940-42; Chief of Air Staff RAAF 1942-52. Regular air force offr; of Melbourne; b. Rushworth, Vic, 11 Nov 1896.

Australia and New Zealand, and four-party and two-party contracts, collectively known as the Riversdale Agreements, came into force on 17th December 1939 and were to continue in the first instance until 31st March 1943. Once the full organisation was in being, the total Australian contribution would be about 10,000 aircrew every year and of these 3,100 pilots, 2,000 observers and 3,300 gunners were to be trained wholly in Australia while eighty pilots (from elementary flying schools), forty-two air observers and seventy-two air gunners (both from initial training schools) were to proceed every month for advanced training in Canada.⁶

From the inception of the Ottawa talks it was clear that Australia must choose between the national policy of an expeditionary air force and the coordinated scheme for feeding what would become virtually an Empire air force. On 20th October the plan for the expeditionary force was postponed and it was later abandoned so that the men and resources earmarked for it could be re-aligned to the huge training task which Australia had undertaken. This was a correct military decision, for although initial concentration on training inevitably restricted R.A.A.F. effort overseas, yet finally the numerical contribution of Australia in the air was substantially larger than could have been effected otherwise. Even so it was only by the absorption of suitable civilian facilities and the full use of R.A.A.F. resources that Australia was ready to commence her share of the gigantic cooperative air training plan in April 1940 when the first ground instruction schools opened, to be followed a month later by elementary flying courses. Thus although it would appear that the actual participation of the R.A.A.F. in air operations during the first nine months of the war was very limited, in actuality the very great concerted effort being made at that time in the sphere of training was the necessary forerunner of parity with and supremacy over the enemy in the air. It was perhaps hard to convince individuals keen to get to grips with a tangible opponent that this long-range policy of expansion was indeed pre-eminent, but to all those who in the original circumstances would have gone overseas with the expeditionary force, Australia owes a great debt. Their services as instructors at that time were of more lasting value than they would have been had they left Australia.

The grand and apparently simple concept of the Empire Air Training Scheme was so enthusiastically received in all quarters that many of its practical difficulties remained hidden during the strenuous months devoted to establishing schools in Canada, Australia and New Zealand. Individuals recruited into the R.A.A.F. were to remain members of their own air force but after training were to be employed operationally within the R.A.F. which assumed full financial responsibility for such service except where Australian rates of pay and pensions differed from English.⁷ From the beginning, however, there was general agreement that as far as possible aircrew of the participating nations should be grouped together

⁶ The deliberations of the Ottawa conference are fully discussed in Vol I (in this series). D. Gillison, *Royal Australian Air Force 1939-42*.

⁷ The difference was paid by Australia.

and *Article XV* of the four-party agreement⁸ stated: "The United Kingdom Government undertakes that pupils trained in accordance with this agreement shall, after training is completed, be identified with Australia either by the method of organising Australian units or formations or in some other way, such methods to be agreed upon by the two Governments." This provision appeared to satisfy Australian requirements, and if R.A.A.F. effort actually developed on lines somewhat different from the "truly Australian contingent" envisaged by the early planners, this failure was not one of intent, but of lack of appreciation on all sides of the changing needs and emergencies of air warfare, the progressive complication of training, and the personal wishes of individual airmen concerning their actual employment.

Nevertheless, during the six months before April 1940, while recruiting and establishing training centres preoccupied the attention of the R.A.A.F. in Australia, two moves were made to solve in advance the problem of deployment. On 9th November Group Captain McNamara,⁹ R.A.A.F. Liaison Officer in London,¹ proposed that a reception base be formed in England "generally to watch the interests of Australian personnel including questions of promotion". The Air Board gave tentative agreement to this proposal during January 1940 but deferred a final decision pending the outcome of a conference to implement *Article XV* of the Riversdale agreement. This conference was to be held during March, and the Australian Government authorised Mr Bruce to press for the retention of the distinctive R.A.A.F. uniform, if necessary at Australian expense.² The more precise method of building up an "Australian Contingent" was to be effected by infiltrating R.A.A.F. aircrew into a limited number of existing R.A.F. squadrons which "shall, directly 75 per cent or more of the aircrew personnel is Australian, be called for example '701 Australian Bomber Squadron Royal Air Force' and have R.A.A.F. commanding officers and flight commanders". It was further proposed that these "Australian squadrons" should be affiliated to R.A.A.F. squadrons employed on similar duties so that "in this way the record of these 'Australian squadrons' will be added to the traditions of the R.A.A.F. squadrons". The moderation of this approach is shown in the further instruction to the High Commissioner that "as the United Kingdom Government would be bearing the financial burden of such squadrons, it is not suggested that they be called R.A.A.F. squadrons".³

⁸ *Article XII* of the two-party agreement.

⁹ AVM F. H. McNamara, VC, CB, CBE. (1st AIF: 1 Sqn AFC 1916-18.) RAAF Liaison Offr, London, 1938-41; DAOC Overseas HQ RAAF 1941-42; AOC RAF Aden 1942-45. Regular air force offr; b. Rushworth, Vic, 4 Apr 1894.

¹ Australian representation in London on air matters had been continuous since 1918. When the AIF HQ in Horseferry Rd closed down an air liaison offr took up residence at Air Ministry until 1929 when he and his small staff were transferred to the office of the Australian High Commr.

² RAAF cadets serving on short-term contracts with the RAF in peacetime wore RAAF uniform only until it became shabby and they then were re-equipped with RAF uniform.

³ A proviso, however, was made that if the Canadian Government under similar conditions claimed that sqns predominantly manned by its nationals should be RCAF sqns, then Australia would make similar demands.

This proposed inter-Dominion conference was not convened in March, however, owing to the absence of Canadian representatives. The succeeding months of military disasters in Europe gave little time for administrative discussions, and thus training under the Empire Air Scheme actually began without adequate provision for the final organisation or employment of its graduates. Minor matters of pay, rank and promotion of E.A.T.S. airmen had received attention in Australia, but these again lacking firm precedents had to be decided on an *ad hoc* basis. There was a tremendous flow of men anxious to enlist as aircrew, although the vast majority wished primarily to train as pilots. All men enlisted as aircraftmen second class, rising to leading aircraftmen during the latter part of their training. The original provisions on graduation were that pilots would rank as sergeants, observers as acting-sergeants (confirmed as sergeants after six months' service) and wireless operators and gunners as aircraftmen or leading aircraftmen according to their final examination results. This vast differentiation in conditions of service followed peacetime practice, but seriously threatened a maximum matched flow of expert men in all categories, and these arrangements were soon liberalised, so that all aircrew graduated with the minimum rank of sergeant, while 33½ per cent of pilots and observers, 10 per cent of wireless operators and 5 per cent of gunners were commissioned as pilot officers immediately after training. Provision was made for further commissioning after a period of operational employment. Thereafter there was little difficulty in securing adequate trainees, for many who faced long periods of waiting on the reserve of pilots volunteered in other aircrew categories in order to get into action more quickly. Others were persuaded to volunteer for ground staff duties while awaiting vacancies in the initial training schools so that the complete program of expansion could be achieved as soon as possible.

Recruiting for this entirely voluntary force presented no difficulties for, although very high educational standards were set for aircrew aspirants, the lure of personal combat and endeavour in the air produced immediately such a flood of applicants that it was necessary to institute a "reservist" scheme by which men awaiting call-up could begin to acquire air force knowledge while continuing their civilian occupations. The secondary call to adventure inherent in oversea service was another factor in the strong response by young Australians, especially in the early days when it appeared that the A.I.F. might not go overseas. The original plan which envisaged a total output of 15,956 aircrew members by March 1943 was from the outset unlikely to fail for lack of volunteers. The immediate delays were caused by lack of schools and technical equipment, and the time needed to train a sufficient number of pilots and ground staff to undertake the main duties of instruction. When the first classes graduated, the majority of the pupils went overseas to join the R.A.F., but inevitably some had to be retained in Australia further to augment the training potential.

While these intense preparations were going forward, Australia had nevertheless succeeded in providing a complete air squadron for the main battle—the flying-boat squadron mentioned above. Wing Commander Lachal⁴ with six other pilots had left Australia by civil flying-boat on 22nd July 1939, while fourteen airmen proceeded by sea, arriving in England on 12th August. They and others were to fly back to Australia nine Sunderland Mark I flying-boats to equip two squadrons to be formed at Point Cook. The airmen were attached to R.A.F. Station, Pembroke Dock, in south Wales, where Sunderland aircraft were already operating and there they underwent familiarisation, trade, and technical training on the new type, being joined on various dates by the pilots as they finished conversion courses at the R.A.F.'s Flying-Boat Training School. Owing to production difficulties and the requirements of the R.A.F., much delay was experienced in taking over the first Sunderlands and their ancillary equipment, and delivery was still being awaited when war was declared on 3rd September. During the unavoidable period of waiting for these aircraft Lachal released four pilots, Flight Lieutenants Pearce⁵ and Cohen,⁶ and Flying Officers Podger⁷ and Birch,⁸ to assist No. 210 Squadron R.A.F., then based on Pembroke Dock. These officers were employed between 15th and 26th September on convoy and anti-submarine patrols in the Atlantic and St George's Channel and thus gained valuable experience of operational conditions. On the 26th they were withdrawn and the R.A.A.F. detachment was divided into three crews in preparation for the flight to Australia then provisionally arranged for early in October. The first Sunderland, P9048, had been taken over at Rochester on 11th September, the second on the 19th and the third was due on 3rd October. On 7th October, however, Lachal was notified that the detachment was to remain on active service in Europe, and he immediately accelerated and intensified the technical and operational training of all his aircrew. Though at that time the detachment had no particular status in Coastal Command—it was a "lodger" unit with No. 210 Squadron R.A.F.—it was able to help as well as gain from the experience of others. The first operational flight was carried out on 10th October when Flight Lieutenants Garing⁹ and Gibson,¹ with a crew, flew to Tunisia with a spare

⁴ Air Cmdre L. V. Lachal, CBE, 28. Comd 10 Sqn 1939-40; Dir of Postings RAAF 1942-43; AOC Eastern Area 1945. Regular air force offr; of Melbourne; b. Melbourne, 18 May 1904.

⁵ Gp Capt C. W. Pearce, CBE, DFC, 51. 10 Sqn; comd 11 Sqn 1941, RAAF in New Guinea 1941-42, HQ Southern Area 1943; Dir Tactical Warfare, 1944. Regular air force offr; of Brighton, Vic; b. Kalgoorlie, WA, 29 Jan 1910.

⁶ Gp Capt J. A. Cohen, DFC, 117. 10 Sqn; comd 11 Sqn 1941-42, RAAF Stn Rathmines 1942-43; Dep Dir of Training 1943-44; Senior Intell Offr HQ RAAF Cd 1945. Regular air force offr; of Coogee, NSW; b. Moree, NSW, 19 Oct 1916. (In 1947 changed his name to Richard Kingsland.)

⁷ Gp Capt I. S. Podger, DFC, 152. 10 Sqn; comd 2 AOS 1943; SASO NE Area 1943-45. Regular air force offr; of Camperdown, Vic; b. Camperdown, 7 Feb 1916.

⁸ Gp Capt H. M. Birch, DFC, 156. 10 Sqn; SASO RAAF Overseas HQ 1941-42; comd 3 OTU 1943; SASO HQ N Cd 1944; comd 5 SFTS 1945. Regular air force offr; of Hawthorn, Vic; b. Melbourne, 26 Jun 1916.

⁹ Gp Capt W. H. Garing, CBE, DFC, 56. 10 Sqn; SASO N Cd and NE Area 1941-42; comd 9 Op Gp 1942-43, 1 OTU 1943-44; Dir of Tactics and Operational Requirements 1944-45. Regular air force offr; of Melbourne; b. Corryong, Vic, 26 Jul 1910.

¹ Gp Capt W. N. Gibson, DFC, 79. 10 Sqn; comd 20 Sqn 1941-42, RAAF Port Moresby 1942; Dir Ops Allied Air HQ 1942-43; SASO RAAF Cd 1943, 1 TAF 1944-45. Regular air force offr; of North Sydney; b. Sydney, 28 Apr 1915.

engine for a Sunderland of No. 228 Squadron which had been delayed at Bizerta. Special routing over France was employed, and the aircraft was flown non-stop each way.

In order to make effective the decision to raise the strength of the R.A.A.F. detachment in England to a full squadron, the Air Board on 3rd November signalled all R.A.A.F. units, calling for volunteers for oversea service. The required numbers of aircrew and skilled tradesmen were selected by the 10th and on the 27th two officers and 183 airmen sailed in the *Orontes* from Fremantle. Considerable political and sentimental importance was attached to this voyage as it heralded the appearance of the first air force unit of any Dominion on active service. Meanwhile the original detachment had continued a revised training program with the help of borrowed R.A.F. facilities and personnel. Four pilots including an engineering specialist arrived by air from Australia on 28th November and a further three were sent in January 1940.

The first "Form Green", the normal authorisation for an operational flight, was passed to No. 10 Squadron's detachment on 5th December and read: "Send a Sunderland from Australian squadron to convey necessary spares to No. 210 Squadron Sunderland in Shetlands. Stop for night 5/12 at Stranraer or Oban: W/T frequency 6500 KCs on 5/12 and keep sharp look out for U-boats, particularly on east of Isle of Man. Return to Pembroke Dock as soon as possible." This flight was successfully undertaken by Garing and on the same day R.A.F. Station, Pembroke Dock, issued Movement Order No. 2 ordering Sunderland N9050 to proceed to Cairo carrying "two Army Officers and one officer of the R.A.A.F. to take part in Staff talks in Egypt".² Lachal was captain of this aircraft which finally left Poole on 9th December. While in Egypt Lachal was able to meet and review the shipborne reinforcements for his squadron before returning to England. The main body of No. 10 Squadron arrived at Pembroke Dock on 26th December after disembarking at Marseille and suffering a slow, dismal, ill-provided journey across France with little comfort in their first Christmas overseas. The united squadron then began a period of settling down and still further intensive training. Between 28th December and mid-January a number of distinguished statesmen and officers visited the squadron, which on 3rd January was officially incorporated into No. 15 Group of the Coastal Command of the R.A.F. It was not adjudged operationally active until 1st February and the first normal operational sortie was made on the 6th. Earlier, however, on 17th January, a second oversea flight with distinguished passengers was made when Gibson flew Air Chief Marshal Sir Charles Burnett³ and Air Vice-Marshal

² These officers were Maj-Gen J. Northcott, Gp Capt W. D. Bostock, and Lt-Col W. Bridgeford.

³ Air Chief Marshal Sir Charles Burnett, KCB, CBE, DSO. (1914-18: RFC and RAF.) IG RAF 1939-40; Chief of Air Staff RAAF 1940-42. Regular air force offr; of Kemnay, Aberdeen, Scot; b. Brown's Valley, Minnesota, USA, 1882. Died 9 Apr 1945.

Williams⁴ to Alexandria en route to Australia where they were to fill important appointments at air force headquarters.

Before the future of No. 10 Squadron had been defined there were already many Australians actively engaged in the air war in Europe. A very small minority of these were R.A.A.F. officers on exchange duty with the R.A.F.; the others were Australians serving directly with the R.A.F. or R.A.F.V.R. It is at times difficult to trace the movements and operations of these men. They were, however, the first Australians to bear the brunt of air fighting, both in Europe and the Middle East, and their service as individuals in every type of R.A.F. squadron is analogous to that of the majority of R.A.A.F. aircrew who later were channelled through the Empire Air Training Scheme into these theatres. There were several distinct groups among these Australians in the R.A.F. Firstly there were officers holding long-service commissions, many of whom had transferred from the Royal Flying Corps or the Australian Flying Corps to the R.A.F. It is difficult to claim Australian identity for such men as Sir William Mitchell,⁵ Sir Arthur Longmore,⁶ or Sir Arthur Coningham,⁷ who, although born in Australia, were educated elsewhere and had none of their military careers in Australian Services, but the McCloughrys⁸ and Roy Drummond⁹ can justifiably be classed with many more junior men who were granted long-service commissions in the R.A.F. between the two wars. The next and largest group contained those holding short-service commissions; finally there were Australians temporarily resident in the United Kingdom for educational or business reasons who joined the R.A.F. Volunteer Reserve before or on the outbreak of war. It was not possible for these men to enlist in the R.A.A.F. in the United Kingdom; to have returned to Australia to enlist would have caused delay and expense; and therefore they joined the R.A.F.¹

⁴ Air Marshal R. Williams, CB, CBE, DSO. (1914-18: Comd 1 Sqn AFC 1917, 40 Wing RAF 1918.) Chief of Air Staff RAAF 1921-38; AO i/c. Admin. Coastal Cd RAF 1939; Air Mbr Orgn and Equipment RAAF 1940-41; AOC Overseas HQ RAAF 1941-42; RAAF Rep Joint Chiefs of Staff Orgn, Washington, USA 1942-46, Dir-Gen Civil Aviation since 1946. Regular air force offr; of Adelaide and Melbourne; b. Moonta, SA, 3 Aug 1890.

⁵ Air Chief Marshal Sir William Mitchell, KCB, CBE, DSO, MC, AFC. Air Member for Personnel on Air Council, 1937-39; AOC-in-C RAF in ME, 1939-40; IG of RAF, 1940-41. Regular air force offr; of London; b. Sydney, 8 Mar 1888. Died 16 Aug 1944.

⁶ Air Chief Marshal Sir Arthur Longmore, GCB, DSO. AOC-in-C RAF in ME, 1940-41; IG of RAF, 1941. Regular air force offr; of Wentworth, Surrey, Eng; b. St. Leonard's, NSW, 8 Oct 1885.

⁷ Air Marshal Sir Arthur Coningham, KBE, CB, DSO, MC, DFC, AFC. AOC Desert AF 1941-43, NW Af Tactical Air Force 1943, 2 TAF 1944-45; AOC-in-C Flying Training Cd 1945. Regular air force offr; of Wellington, NZ, and Cookham Dean, Eng; b. Brisbane, 19 Jan 1895. Killed in aircraft accident 30 Jan 1948.

⁸ AVM W. A. McCloughry, CB, DSO, MC, DFC. (1914-18: 9 ALH Rgt at Gallipoli; RAF in France; comd 4 Sqn AFC 1917-18.) Dir of Training Air Ministry 1938-40; AOC 9 Fighter Gp 1940-42, Air HQ Egypt 1942-43. Regular air force offr; of Adelaide; b. Knightsbridge, SA, 26 Nov 1894. Killed in aircraft accident 4 Jan 1943.

AVM E. J. Kingston-McCloughry, CB, CBE, DSO, DFC. (1914-18: AIF 1915-16, AFC 1917-18.) Asst Dir War Orgn RAF 1938-40; AOC 44 Gp 1942-43; Hd operational planner ARAF 1943-44; Air Mbr Govt of India committee on defence NW Frontier 1945-46. Regular air force offr; of Adelaide; b. Adelaide, 10 Sep 1896.

⁹ Air Marshal Sir Peter Drummond, KCB, DSO, OBE, MC. (1914-18: AAMC 1914-15; RFC and RAF, Palestine 1916-18.) SASO, HQ RAF ME 1937-41; DAOC-in-C HQ RAF ME 1941-43; Air Mbr Training, Air Council 1943-45. Regular air force offr; of Perth, WA; b. Perth, 2 Jun 1894. Killed in aircraft accident 27 Mar 1945.

¹ Later a few Australians were enlisted directly into the RAAF but only for special duties. Thus, in 1942, two offrs were secured for the Public Relations Branch of Overseas HQ RAAF.

The total number of Australians in the R.A.F. at this time was approximately 450. Nearly all were operational pilots, other aircrew categories being sparsely represented although a proportion of older men had risen to posts of responsibility on group and command staffs, while there were also medical and technical specialists in small numbers. After the outbreak of war the Air Ministry also secured permission to recruit within Australia a number of well-educated men above normal aircrew age limits for duties as cipher, administrative and technical officers with the R.A.F., and these soon arrived on squadrons, although predominantly in the Middle East and Far East theatres of readiness.

Air warfare in western Europe began on a cautious note which seemed unreal to populations warned by the Italian General Douhet and other protagonists of air bombardment to expect immediate mass raids and burning cities. After a swift success in Poland the *Luftwaffe* was poised ready to strike at France and England, but was held back by Hitler while successive threats and offers of peace were extended to the Allies. For their part neither the French nor the British air force was strong enough to strike immediately with prospect of real success, and a "phoney war" of defensive patrolling occupied most of the winter months of 1939-40. Only at sea, and even there only against enemy warships, was the R.A.F. permitted to bomb. Otherwise, while strenuously seeking to increase its strength for the real battles which must come, it was confined to day and night reconnaissance, propaganda leaflet raids, and the repulse of similar enemy reconnaissance. Such raids as were made against the German navy were hotly contested as on 4th September 1939 when Flight Lieutenant Brough² of No. 99 Squadron R.A.F. flew in a mixed force of Blenheim and Wellington aircraft sent to attack enemy warships between Brunsbüttel and Wilhelmshaven. This first raid of the war was a minor disaster; five Blenheims and two Wellingtons were shot down by well-alerted defences, although Brough early showed the calm and presence of mind under adverse conditions which were to set an example to his fellow pilots in succeeding months, and he safely flew back to base. Other Australians serving with heavy-bomber squadrons made winter flights from improvised bases in Scotland searching for German ships attempting to pass out into the North Atlantic to undertake a *guerre de course* but with only primitive navigational aids and generally poor weather conditions no interception was made of these fleeting targets.³ Nor was greater success achieved against enemy ships nearer their own anchorages: for example, Flying Officer Lewis⁴ of No. 37 Squadron R.A.F. perished on his first operational sortie on 18th December 1939 when six aircraft from

² Sqn Ldr J. F. R. Brough, DFC, 39454 RAF, 257416. 99, 15, 35 and 78 Sqn RAF. Regular air force offr (transf from RAF to RAAF 1943); of Bellerive, Tas; b. Perth, WA, 26 Nov 1916.

³ At this time Wellington, Whitley and Hampden aircraft were classed as "heavy bombers". They became "medium bombers" on the introduction of four-engined types.

⁴ F-O O. J. T. Lewis, 40054 RAF; 37 Sqn RAF. Regular air force offr; of Artarmon, NSW; b. Sydney, 7 Sep 1915. Killed in action 18 Dec 1939.

his squadron were intercepted off Wilhelmshaven by up to fifty fighters which shot down every bomber except one.

The total losses suffered in this disastrous daylight reconnaissance amounted to 12 of the 24 Wellingtons which took part. It is believed that this was the first occasion when radar was employed operationally by the enemy. The magnitude of this setback coming as it did hard upon a similar reverse on 14th December (when 5 of 12 Wellingtons failed to return from a reconnaissance sweep in Heligoland Bight) raised justifiable doubts as to the wisdom of thus employing the too-few heavy bombers at the disposal of Bomber Command. Policy decisions taken on 19th November forbade attack on enemy warships "in positions where attack would involve chances of bombing civilian population". In practice this meant that crews were forbidden to bomb vessels in dock, alongside or even in close company with merchant ships. Thus, although in the debacle of 18th December surviving crews reported four destroyers in dock and four heavier ships alongside in the inner harbour at Wilhelmshaven, none of these could have been bombed even had the raid been uncontested in the air. One immediate result was that the Air Ministry ruled that neither reconnaissance in force nor attack on German naval bases was to be made until armoured and self-sealing petrol tanks had been fitted to the bombers. The delay entailed in this modification, bad weather during winter months, and a natural caution engendered by previous attempts, led to only desultory participation by Bomber Command in the war at sea. During the first seven months of the war the campaign against the German fleet was a failure. No surface vessels were sunk or crippled.⁵

A more continuous activity for bomber crews was the dropping of propaganda leaflets by night over Germany. This kind of bombardment began on the night of 3rd-4th September. Although the effect of these leaflets in demoralising the enemy population was very uncertain, these flights were of considerable importance in giving the first experience of long-range night flying at high altitudes over a blacked-out hostile territory. Few aircraft were shot down but the conditions of cold and oxygen lack experienced by the crews were among the most arduous of the whole war,⁶ for cabin heating and oxygen systems in the aircraft were then inefficient, or non-existent, and the men had no electrically-heated clothing.

⁵ A U-boat was indeed sunk in Schillig Roads on 11 Mar by a Blenheim but this submarine was salvaged by the enemy and was finally destroyed at sea during Nov 1940.

⁶ The following is an account of a flight on 27 Oct 1939 by a crew detailed to drop leaflets at Munich: "Crystalline icing was encountered above 20,000 feet in cloud. The temperature was -22c. The front gun was frozen and the centre trimming tabs jammed. The mid gun jammed shortly afterwards. Oxygen was necessary, but only one bottle was charged, the others being empty. The temperature dropped to -30c. At 14,900 feet the ice accretion had dropped but the temperature had fallen to the temperature gauge limit. At 8.15 p.m. the oxygen supply ran out, but course was set direct to the point 42 miles N.E. of Munich. The leaflets were dropped at 18,800 feet by hand, down the launching tube. Such was the condition of the navigator and wireless operator at this stage that every few minutes they were compelled to lie down and rest on the floor of the fuselage. The cockpit heating system was useless. Everyone was frozen, and had no means of alleviating their distress. The front gunner lay in a heap on the floor, utterly exhausted. The navigator and commanding officer were butting their heads on the floor and navigation table in an endeavour to experience some other form of pain as a relief from frostbite and lack of oxygen." This crew had had no food since midday and were not supplied with any before the take-off about 6 p.m.

Australians in Fighter Command similarly had few opportunities for action during the early months when the largest enemy raids (those against Scapa Flow naval anchorage) were made by not more than thirty bombers at a time. As these attackers came over the sea and never penetrated inland, there was little time to intercept and engage them, but pilots became increasingly proficient in estimating the probable route and tactics of the enemy. Flight Lieutenant Sheen⁷ and Squadron Leader Lees⁸ of No. 72 Squadron R.A.F., for example, were successful in warding off several enemy attacks. In November Sheen and two other Spitfire pilots shot down two He-115 float-planes attacking a convoy near Hull; and on 7th December Sheen was in a flight of five Spitfires which intercepted five Heinkel 111's attempting at low level to approach the Firth of Forth. This engagement took place in poor visibility twenty miles out to sea but two of the raiders were shot down and the others fled.

In those days, however, most of a fighter pilot's time was spent feverishly learning to fly the eight-gun Hurricane and Spitfire fighters jealously conserved for the front line, and in cooperating with the ever-growing network of radar defences covering the south-eastern coasts of Great Britain. Both Bomber Command and Fighter Command were also maintaining forces⁹ in France but there also the same restrictions on bombing prevailed and, in any case, the exceptionally severe winter hampered operations. The months were chiefly devoted to training, technical development and the siting of airfields and bases.

In Coastal Command, however, operations were continuous and unremitting, for the majority of available squadrons was disposed along the eastern coast of England and Scotland to fly an elaborate pattern of patrols designed to bar egress from the North Sea to enemy surface ships and if possible to any underwater craft. These patrols began (at first unarmed) on 24th August and although, in the main, Australians saw little except lowering skies and angry seas, the total effect of this constant vigilance was confidently believed to hamper enemy movements. In retrospect it is difficult to prove that the faith and purpose which animated these monotonous and exacting searches in lightly-defended aircraft throughout an extremely cold winter were justified. Only one sighting of enemy naval units apparently attempting a breakout was in fact made during this period. That was on 8th October 1939 when a Hudson of No. 224 Squadron reported the battle cruiser *Scharnhorst*, a *Königsberg*-class cruiser and four destroyers steaming northwards some 40 miles south-south-west of Lister. These units were shadowed but were not

⁷ W Cdr D. F. B. Sheen, DFC, 39474 RAF, 212 Sqn RAF; comd 72 Sqn RAF 1941, RAF Stations Manston 1942-43, Skaeabrae and Drem 1943, 148 Airfield HQ RAF 1944-45. Regular air force off; of Canberra, ACT; b. Sydney, 2 Oct 1917.

⁸ Air Cmdre R. B. Lees, CB, CBE, DFC, 29257 RAF, Comd 72 Sqn RAF 1938-40, RAF Stn Coltishall 1941-42, 324 Wing RAF 1942-43; SASO 242 Gp HQ 1943, HQ MATAF 1943-45. Regular air force off; of Adelaide; b. Broken Hill, NSW, 27 Apr 1910.

⁹ The Advanced Air Striking Force of 10 sqns of Fairey Battle single-engined bombers was virtually an extension of Bomber Cd originally intended to bomb German industrial areas. French fears of reprisals curtailed its activities to reconnaissance duties for which it was only moderately fitted even when provided with two squadrons of escort fighters. The RAF Component of the British Expeditionary Force contained fighter, army-cooperation and reconnaissance squadrons and was under the operational control of General Lord Gort, commanding the BEF.

found the next day when searched for, and it was assumed that they had put out for their base because they realised their passage had been detected. Again German documents give no specific instance in which any *planned* move of German warships was hampered by the North Sea air patrols. However, because German naval planning in the event of war with England clearly envisaged prime emphasis on "merchant warfare on the high seas" and because in fact the "pocket-battleships" *Graf Spee* and *Deutschland* with attendant supply ships were sent to waiting positions in the Atlantic on 21st and 24th August respectively, it is not unreasonable to assume that had the way been obviously clear, Admiral Raeder would have made more strenuous efforts to create further diversions in distant oceans.

In addition to the main blocking patrols there were many needs which arose from day to day. Within No. 220 Squadron R.A.F. Flying Officers Bruce¹ and Tulloch² were both members of a specialised battle flight of Hudsons which was sent frequently into the Heligoland Bight to report shipping and engage German air patrols. Both fought inconclusive actions with enemy coastal aircraft on 18th December while five days earlier Flying Officer Hurley³ of No. 224 Squadron R.A.F. had claimed damage to two Do-18's while flying with a similar force. During this period Hurley also joined in the search for the American ship *City of Flint* seized by the Germans, and maintained escort patrol for the submarine *Triad* and the cruiser *Aurora*, damaged by enemy action.

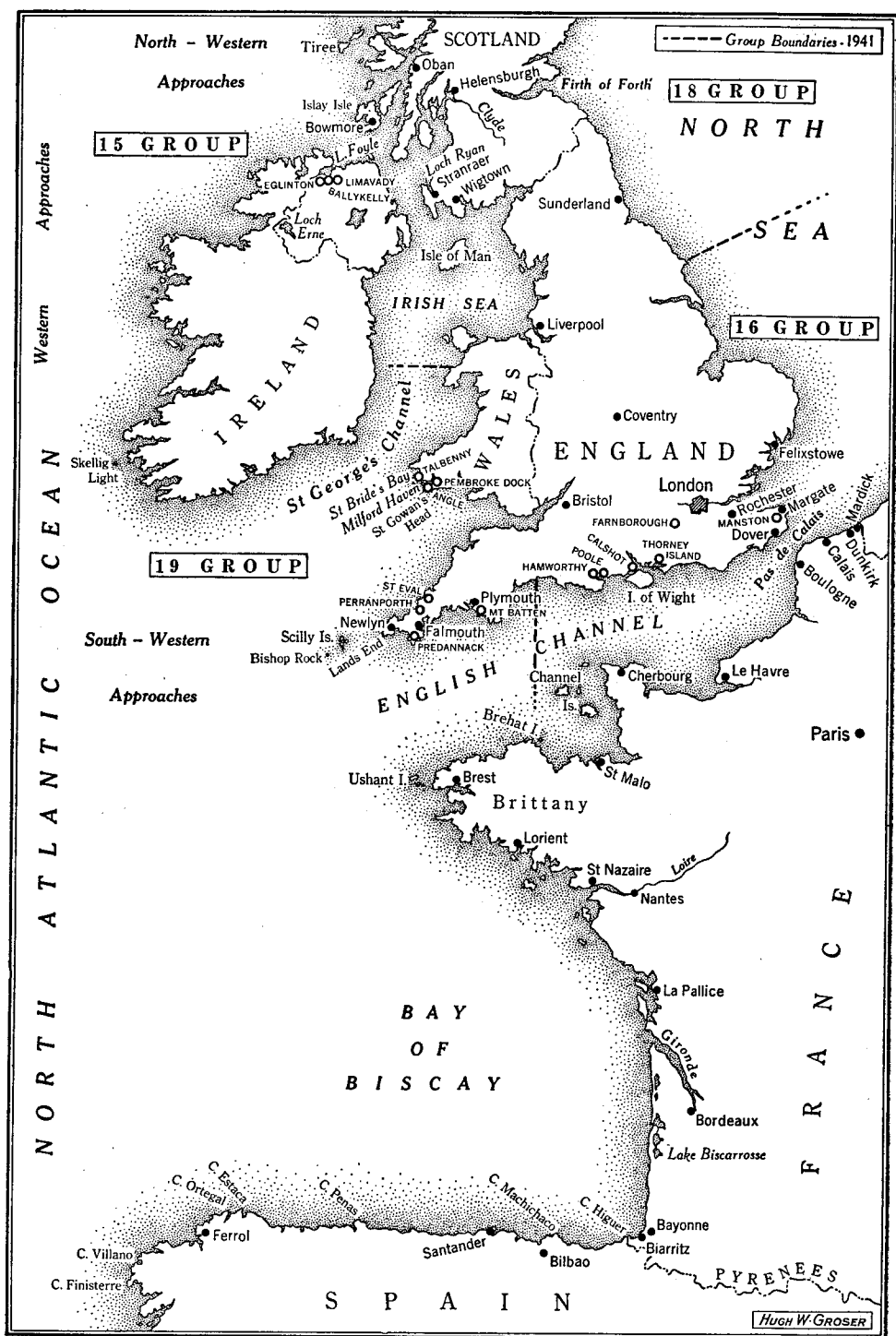
It was at the beginning of February 1940 that No. 10 Squadron R.A.A.F. came into the line at Pembroke Dock; its first normal operation, the daylight escort of a naval force, was carried out on the 6th by the new commanding officer, Flight Lieutenant Pearce. (Wing Commander Lachal, who had trained the unit well, had returned to Australia to a senior appointment.) The Australians had the task of protecting Allied shipping in the South-Western Approaches from U-boat attack, an onerous responsibility in that at this period the U-boats, although few in number,⁴ were able to manoeuvre and lie submerged in close proximity to the English coast. Air patrols by regular squadrons and the special scarecrow flights of Tiger Moth aircraft were by no means dense enough to drive the enemy into deeper waters; he dived prudently whenever aircraft were present and waited for unescorted targets. Submarine operations in the south-west were not persistent at that time but nevertheless the coastal squadrons, lacking intelligence of enemy intentions, had to maintain frequent patrols whether ships were being sunk or not. In accordance with

¹ W Cdr A. Bruce, 39268 RAF; 220 Sqn RAF; comd 7 Air Obsr and Bombg and Gunnery School, S Af 1942; 38 Sqn RAF. Regular air force offr; of Campbell Town, Tas; b. Campbell Town, 23 Feb 1913.

² F.O C. F. L. Tulloch, 39403 RAF; 220 Sqn RAF. Regular air force offr; of Mosman, NSW; b. Mosman, 3 Jan 1916. Killed in action 14 Apr 1940.

³ F.O T. K. Hurley, 41420 RAF; 224 Sqn RAF. Regular air force offr; of Sydney; b. Randwick, NSW, 1 May 1915. Died 8 Jun 1943.

⁴ Germany entered the war with approximately 50 U-boats. Many of these were unsuitable for ocean voyages and were held back for training purposes, and thus in the early months rarely more than 5 or 6 were at any one time in their operational areas.



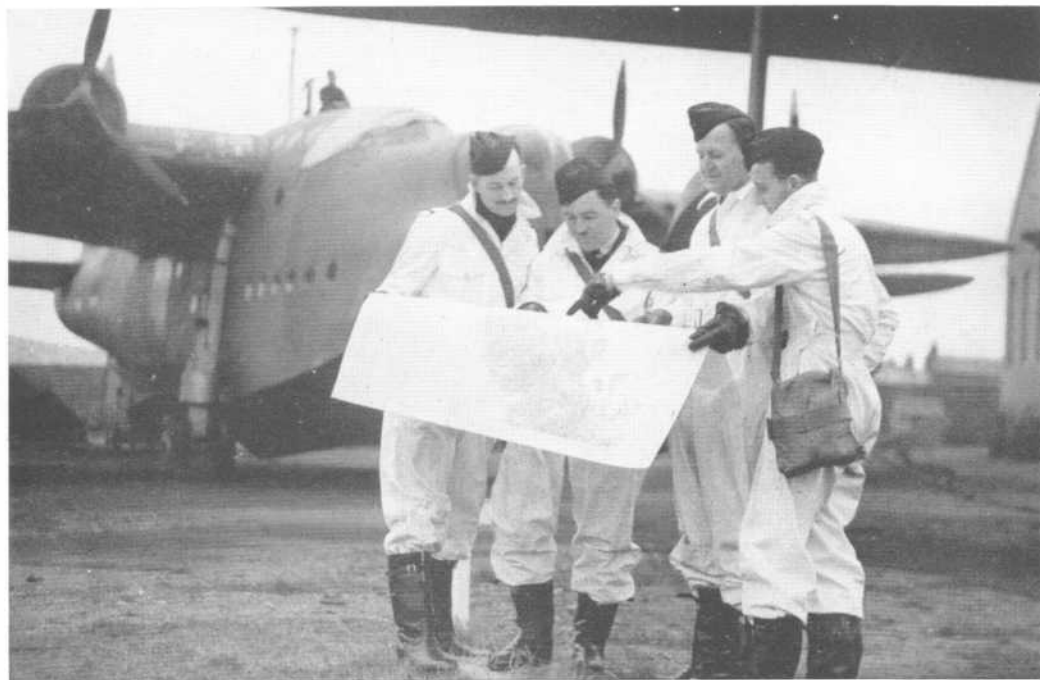
Coastal Command: United Kingdom and the Bay of Biscay.

the tactical requirements of that period eleven sorties on convoy-escort duty were performed by No. 10 Squadron during February. No less than five of these flights were abortive or curtailed because of extremely poor flying conditions and visibility, but the effort compared well with that of more experienced formations. No major incident was recorded, but an empty life-boat sighted by Gibson on 14th February was taken on board by a destroyer directed to the position, and ten days later Gibson reported a floating mine. About six U-boats were operating continuously off the west coast of the United Kingdom at this time, and the progressive development of unrestricted warfare against Allied merchant shipping was continued.

At the end of February No. 10 was informed that as soon as all its pilots were fully trained for both day and night operations, they were to move to Mount Batten in Plymouth Sound, which would be their war station. This transfer was the keystone of a general redistribution of flying-boat squadrons "to enable greater use to be made of the flying-boat maintenance facilities at home and to provide for increased flying requirements necessitated by the approaching summer". The strength of each of the existing three R.A.F. Sunderland squadrons was to be reduced from eight to six aircraft thus enabling a fourth squadron to begin training on this type at Pembroke Dock, and also facilitating the transfer of a Sunderland squadron (No. 204) to No. 18 Group, where the needs of reconnaissance in dangerous areas were greater than squadrons armed with obsolescent aircraft could fulfil. Pearce stated that his squadron would be fully prepared for the move by 15th March, and, in the meantime, technical and administrative officers went to Mount Batten to inspect the facilities there. The transfer finally took effect on 1st April, operations continuing from Pembroke Dock during March when, in improved weather, twenty convoy-escort patrols were mounted. In only one instance was rendezvous with the convoy not made, and all these flights were completed without encountering the enemy and without mishap.⁵

The squadron was now beginning to work efficiently and in addition to operational requirements many navigation and night-flying training sorties were made. Pearce was fortunate to command a unit representing the cream of the R.A.A.F. The officers and airmen originally selected for ferrying duties had naturally been the best available, and the subsequent reinforcement aircrews had also been men of considerable reconnaissance experience, while the main body of ground staff, though initially lacking experience of Sunderlands, were all thoroughly competent tradesmen. This ensured very swift development and teamwork in comparison with R.A.F. squadrons which were all suffering a dilution of their trained personnel consequent on the needs for rapid expansion within Coastal Command. There were, however, many difficulties in this early period quite apart from actual hazards of operations. The squadron members had come direct from Australia to face what was hailed as the severest

⁵ German U-boats were at this time held back in Baltic ports in readiness for the Norwegian expedition.



(*"Topical" Press, London*)

Four of the original aircraft captains of No. 10 Squadron conferring at Pembroke Dock. Left to right: F-O I. S. Podger; F-Lts W. H. Garing, C. W. Pearce, W. N. Gibson, December 1939.



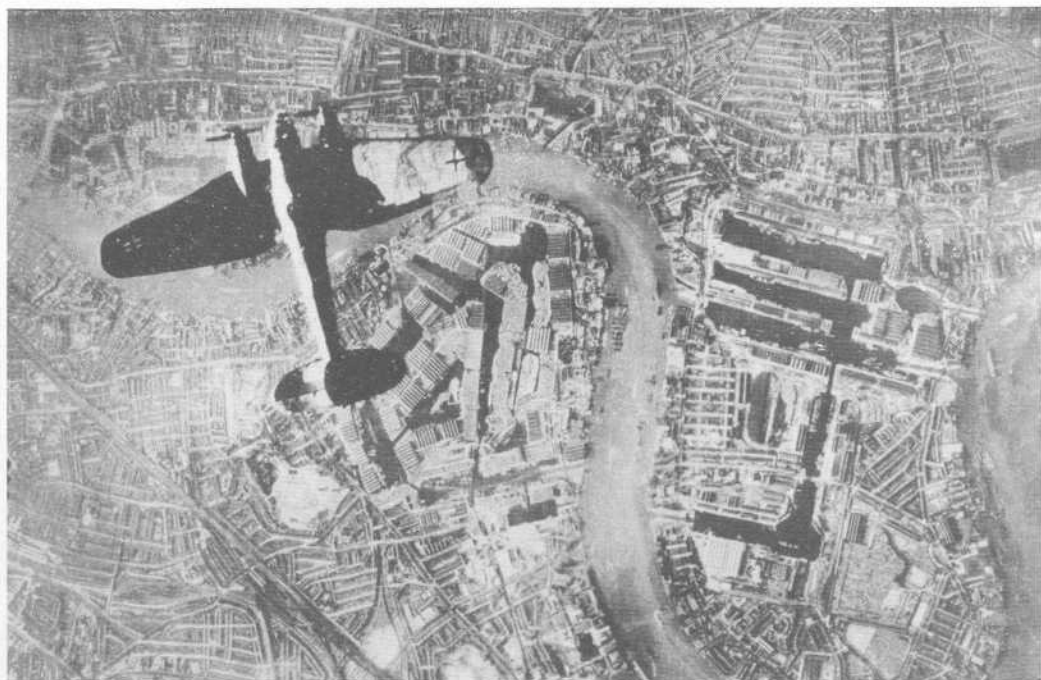
(*Air Ministry*)

Ground crews of No. 3 Squadron disembarking at Port Tewfik, Egypt, on 23rd August 1940.



(R.A.A.F.)

The result of F-Lt W. N. Gibson's second attack on *U26*, south-west of the Scilly Isles on 1st July 1940. The U-boat scuttled itself soon afterwards.



(German sources)

A Heinkel 111 of the German Air Force over London's dockland on 7th September 1940.

winter in England for seventy-five years. Many airmen went to bed wearing Balaclava helmets and as much clothing as they could procure. Due to the presence of three squadrons at Pembroke Dock much of the maintenance work had to be done out of doors, and frequently snow and ice had to be swept off the tarmac and slipway before aircraft could be beached or serviced. During the short stay at Pembroke Dock 300 R.A.F. blankets "disappeared", many of them being used to line the greatcoats of the maintenance crews. There was a general shortage of tools, none having been brought from Australia, and at first six craftsmen had to share one kit, but despite all such difficulties, and the many technical problems associated with maintenance of airframes and engines of which they had no previous experience, the Australian ground staff kept the Sunderlands at a high level of serviceability. The keenness and determination with which they mastered all obstacles later enabled the squadron to operate at a phenomenal intensity during the summer of 1940. Finally, the intense cold caused not only discomfort but sickness and at one time approximately 25 per cent of the men were ill with influenza, and practically every man was confined to bed at some time during the winter. A minor outbreak of cerebro-spinal meningitis caused added discomfort because it resulted in an order that all windows in the living quarters were to be left open for a period of six weeks.

The Royal Air Force station at Mount Batten was in every way a fine operational base, with excellent living quarters for all ranks and good recreational facilities of all kinds in the Devon countryside or in near-by Plymouth; but the Australians especially appreciated the splendid maintenance facilities after their cramped quarters and eternal improvisations at Pembroke Dock. Moreover, being the only squadron based there, No. 10 could initiate its own procedures.

Operations continued smoothly during April but without incident. Of twenty-two sorties, all but two were detailed for close escort to shipping in the Western Approaches, but as practically all the enemy submarines had been withdrawn to Norwegian waters, the convoys were not attacked. While this defensive flying was in progress, however, there was again much intensive training, for any lull in the mounting tension at sea was recognised as likely to be only a temporary one. Ground staff reinforcements arrived from Australia on 17th April and began trade and technical training immediately. These twenty-two men were urgently needed, for, apart from performing all maintenance including major inspections, the Australian maintenance staffs had also to supply the crews (except pilots and observers) of the Sunderlands. The wireless operators, air gunners and flight engineers drawn from the ground staffs were initially trained by the squadron in all of their air duties.⁶ For many months they served in rotation before fully-trained categories of aircrew were available to replace them. Sergeant Richmond,⁷ a fitter IIE, for example, flew many

⁶ Although the EATS provided a minimum rank of sgt for aircrew, these men flew as cpls, lac's or even ac's according to rank in their basic trade.

⁷ W Cdr W. D. Richmond, OBE, 2984. 10 Sqn; Liaison Offr (Engineer) Fwd Ech, RAAF HQ 1943-45. Regular airman; of Kew, Vic; b. Ballarat, Vic, 15 Nov 1906.

operational sorties, and during the early period when No. 10 lacked sufficient junior pilots, acquitted himself admirably with Cohen and other aircraft captains on long and complex flights. Pilots meanwhile were still concentrating on night-flying training and on 17th April the Chief Constable of Plymouth was carried on one of these exercises so that he could assess the effectiveness of blackout regulations in the city.

At the beginning of May Pearce made a notable decision which, though later challenged and forbidden both by Coastal Command and the Australian Air Board, temporarily enabled the squadron to work at a remarkable intensity. Instead of allocating his nine Sunderlands according to prescribed establishment of six for operations, two as initial reserve and one for training, he determined to use all nine for operations. The defeats on the Continent necessitated a maximum effort after the first week, and on some days as many as four operational sorties were made. Hitherto pilots had seen little in their patrols except empty seas and the serene ranks of convoys, but renewed enemy submarine activity brought them into contact with some of the tragedies of sea warfare—the rafts, life-boats and stricken ships which were to be a grim but familiar background to their patrols for the next year. On 14th May the first enemy sighting was made when Birch, who earlier in his patrol had arranged for another ship to take in tow the disabled *Cabenda* (534 tons), at 5.55 a.m. discovered a submarine at periscope depth immediately beneath him. No attack was practicable as the submarine dived at once, but Birch remained searching the area for five hours. Events during the month moved to a climax, and day and night patrols became the rule, many of them being in conjunction with naval anti-submarine vessels. On the 23rd Garing searched unavailingly for a submarine which attacked a *Hunt*-class destroyer with which he was cooperating. On the next day Gibson while escorting a convoy received a message from H.M.S. *Leith* concerning a life-boat sixteen miles to the south-east. He relayed the message by visual signal to the sloop *Enchantress* and attempted to locate the life-boat himself, but was unsuccessful in the prevailing conditions of poor visibility. However, this cooperation of air and naval units led to the speedy rescue of twenty-three seamen from the Greek ship *Kyma* which had been torpedoed without warning during the night some sixty miles south of the Scilly Isles.

After what had been truly a winter of discontent, spring brought new dangers and the active combat for which the Australians scattered among the home-based R.A.F. commands had waited impatiently. Bomber Command had maintained nightly intruder patrols over German seaplane bases for some months but at last on 19th-20th March the bombing of Hornum was authorised as a reprisal against a recent German attack on Scapa Flow. An Australian—Flight Lieutenant Taylor⁸ of No. 50 Squadron R.A.F.—was among those who flew on this raid which, although

⁸ Sqn Ldr G. R. Taylor, DFC, 36134 RAF. 50 and 207 Sqn RAF. Regular air force offr; of Middle Brighton, Vic; b. Hawthorn, Vic, 15 Apr 1918. Killed in action 13 Aug 1941.

it failed to achieve outstanding results, sent a ripple of enthusiastic anticipation through all Australians. Nor was there long to wait, for when on 8th-9th April the Germans invaded Denmark and Norway it was obvious that the "phoney war" was at an end. Evidence of this enemy move had been slowly accumulating, as, for example, on 7th April when Bruce discovered and shadowed a German naval force moving northwards from the Heligoland Bight. Tulloch was sent out to report enemy dispositions on 9th April and again on the 14th, failing to return from this second sortie. The long, weary hours of winter flying had given Coastal Command pilots invaluable experience in reconnaissance of the Norwegian coast, and several Australians with their fellows were frequently dispatched to watch enemy moves and to give what protection they could to the Allied expedition sent to central Norway. The Hudsons were also employed in night-bombing raids as on 22nd-23rd April when Hurley and Flying Officer Horan⁹ of No. 233 Squadron R.A.F. joined in an attack on oil storage tanks at Bergen. Bomber Command, too, began to bomb targets in Norway, although it could not operate at full intensity as it was still earmarked to oppose any sudden enemy move against France, the bulk of German ground and air forces still being arrayed on the Western Front. These Bomber Command raids, principally against German-held airfields, were made by forces of twelve aircraft or less and failed to have any appreciable effect on the military situation. Many crews failed to find their targets on an unfamiliar and bewildering coastline because of foul weather, primitive navigation aids and a lack of proper maps and charts.¹ This general failure did not, however, obscure individual feats of gallantry. On 9th April Flight Lieutenant French² in a Hampden of No. 50 Squadron attacked the German cruiser *Konigsberg* near Bergen, and the ship was sunk next day during an attack by Fleet Air Arm Skuas. Flight Lieutenant Edwards³ of No. 107 Squadron on 14th April drove home a valiant attack with his Blenheim against Stavanger airfield despite a heavy snowstorm and intense anti-aircraft fire and on 20th-21st April Flying Officer Ross⁴ of No. 83 Squadron R.A.F. made five deliberate runs over Aalborg airfield in Denmark before releasing his bombs accurately. Flying Officer Gibbes⁵ raided both Bergen and Stavanger but these and many more similar exploits were virtually pinpricks. Although two fighter squadrons were temporarily established in Norway, no real air

⁹ F-O J. H. Horan, 41417 RAF; 233 Sqn. Regular air force offr; of Kensington, NSW; b. Kensington, 11 Jul 1913. Killed in action 31 Jul 1940.

¹ Frequently crews had no better guide than a sheet from an extremely small-scale map and a tracing from the town plan in *Baedeker's Guide*. On some occasions, however, Coastal Cd navigators were lent to bomber sqns.

² W Cdr D. J. French, DFC, 36129 RAF, 257540. 50, 106, 207 and 97 Sqns RAF, 455 Sqn, 108 Sqn RAF; comd ARC Karachi 1942; 215 Sqn RAF. Regular air force offr; of Brighton, Vic; b. Melbourne, 16 Dec 1915.

³ Sqn Ldr W. H. Edwards, DFC, 40045 RAF. 211 and 107 Sqns RAF. Regular air force offr; of Leichhardt, NSW; b. Leichhardt, 18 Oct 1915.

⁴ F-O E. H. Ross, DFC, 40060 RAF; 83 Sqn RAF. Regular air force offr; of Tamworth, NSW; b. Tamworth, 19 Jul 1914. Killed in action 12 Aug 1940.

⁵ W Cdr A. R. Gibbes, DFC, 40048 RAF, 267505. 115 and 218 Sqns RAF; comd 142 Sqn RAF 1943. Regular air force offr; of Northbridge, NSW; b. Young, NSW, 5 Jan 1915. Killed in action 16 Aug 1943.

support could be given to the Allied ground troops who were forced to withdraw from central Norway early in May. Farther north, out of range of aircraft based in the United Kingdom, a second Allied force continued to fight around Narvik and during May Coastal Command escorted naval vessels supplying this expedition. Hurley on 11th May attacked a U-boat and drove off two Heinkel 111 aircraft which attempted to attack ships he was convoying and Horan also attacked a U-boat in the North Sea on 20th May.

There was little time to appreciate the implications of the enemy success in Scandinavia before the Germans again attacked in strength. This time the neutral victims were Holland, Belgium and Luxembourg who had been deterred from any defensive arrangements with the Allies by a cynical smoke screen of German threats mixed with protestations of friendship. Thus when the German ground and air offensive began on 10th May the whole north-eastern flank of the Allied line was in jeopardy.

The British Expeditionary Force advanced into Belgium under fighter cover from the air component, but it was early clear that in all arms the Germans had superiority. Nevertheless the R.A.F. took up the task of impeding the enemy advance despite disastrous losses. The Battle bombers, defenceless against fighter attack from below and astern, were thrown into low-level attacks against German armoured columns but were slaughtered by strong anti-aircraft fire, losing seventy of their number in the first five days of the campaign, after which they were withdrawn from daylight operations. Typical of the outstanding courage and tenacity of the men required to undertake such suicidal "collaboration" in the land battle was that shown by Flying Officer Blom⁶ when detailed to lead a half section of Battles against a German motorised column in Luxembourg. Before reaching this objective machine-gun fire pierced his petrol tank, and although drenched and almost blinded he dived against another chance-encountered enemy group. His aircraft was subjected to incessant small-calibre fire from the ground and damaged beyond repair, but his attack completed, Blom managed to fly his machine ninety miles back into friendly territory. On 12th May when volunteer crews of No. 12 Squadron R.A.F. were required to destroy bridges over the Albert Canal in the path of the enemy, Flight Lieutenant McIntosh⁷ flew one of the three aircraft sent against the bridge which would cut the Maastricht-Hasselt road. The front line was swarming with Messerschmitt fighters and all three Battles were shot down.⁸

Twenty-four Blenheims from bases in England made a coordinated raid against other road junctions in the same area, but they also suffered heavily. Edwards of No. 107 Squadron, who had shown consistent courage in attacks against enemy naval units and airfields survived to

⁶ F-Lt W. M. Blom, DFC, 40041 RAF; 150 Sqn RAF. Regular air force off; of Battery Point, Hobart; b. Hobart, 6 Mar 1917. Killed in aircraft accident 27 Jul 1940.

⁷ Sqn Ldr I. A. McIntosh, 40631 RAF; 12 Sqn RAF. Regular air force off; of Glen Innes, NSW; b. Glen Innes, 17 Mar 1915.

⁸ Photographs brought back by the Blenheims indicated a breach in the eastern end of the bridge—but there was little hindrance to the enemy who quickly substituted pontoons.

become, like McIntosh, a prisoner of war. Only two days later it was necessary to make a similar desperate attempt against bridges over the Meuse River and on this occasion Squadron Leader Hobler⁹ of No. 142 Squadron R.A.F. attacked but was then forced down in enemy territory. Undeterred he set fire to his aircraft and although badly burned about the face, he led his crew safely back into France. Flight Lieutenant Bungey¹ of No. 226 R.A.F. and Flight Lieutenant Walsh² of No. 139 Squadron R.A.F. were more fortunate, surviving to perform many bombing and reconnaissance sorties before being evacuated from France. However, Flight Lieutenant Taylor³ of No. 142 was forced down and captured during an attack delivered in daylight on enemy positions near Laon.

While No. 1 Group, Bomber Command, was being virtually wiped out in France,⁴ the employment of the heavy bombers in England became a potent source of controversy. Permission was given on 15th May for bombers to be sent against oil and communications targets in Germany to sting the enemy into diverting his air strength against England rather than against France. By this time, however, the French positions on the Meuse had been broken and, at the request of the French, some of the heavies were thrown against the German front line until 26th-27th May when German-occupied airfields in France were also bombed. Communications around Dunkirk next received priority for a few nights and then oil and marshalling yards in Germany again became primary targets. Appeals for pressure against communications actually in the battle area again divided the available bombing strength, with a fresh diversion against Genoa and Turin after Italy entered the war. On 12th-13th June the heavies again attempted to bolster up the French declining will to resist, but German targets soon reappeared on the bombing program especially after 17th June when it was known that the French had requested an armistice. None of these varied and, at times, bewildering changes of target in effect held up the German advance—or deflected him from his obvious path of a quick victory in France. Great pains were taken by individual pilots to carry out each raid with maximum care, but although there were many minor successes, as in Norway, the weight and consistency of the attack was insufficient to secure a decisive result.

Meanwhile the fighter pilots in France reinforced by new squadrons from England strove earnestly not only to protect the Allied ground forces, but also to give what cover they could to the unfortunate Battles. Many of the official records were lost or purposely destroyed during the general debacle, and out of this confused period of heroism against great odds

⁹ Gp Capt J. F. Hobler, CBE, 34060 RAF, 142 Sqn RAF; SASO 91 Gp HQ 1942; comd RAF Stn Lossiemouth 1942-45. Regular air force offr; of Rockhampton, Qld; b. Rockhampton, 26 Sep 1907.

¹ W Cdr R. W. Bungey, DFC, 40042 RAF, 257414. 226, 79 and 145 Sqs RAF, comd 452 Sqn 1941, RAF Stns Shoreham and Hawkinge 1942. Regular air force offr; of Glenelg, SA; b. Fullarton, SA, 4 Oct 1914. Died 10 Jun 1943.

² Sqn Ldr K. H. Walsh, 40064 RAF; 139 Sqn RAF. Regular air force offr; b. Mount Pleasant, SA, 20 Jul 1916. Killed in action 2 Sep 1941.

³ F-Lt H. H. Taylor, 36153 RAF, 297495; 142 Sqn RAF. Regular air force offr; of Perth, WA; b. Hamilton, Vic, 29 Aug 1918.

⁴ During the campaign 137 Battles and 37 Blenheims of AASF were lost.

only a few incidents and names emerge with clarity. Flying Officer Clisby⁵ of No. 1 Squadron R.A.F., who had already had his share of interception and victories before 10th May then entered a meteoric, breath-taking period of five days during which he had six combats and was credited with shooting down eight German aircraft. Still wearing his tattered R.A.A.F. uniform⁶ he was seen going down, with his aircraft on fire, on 15th May having, as one colleague wrote, "thrown himself into the fray with a reckless abandon that was magnificent".⁷ On the same day Flight Lieutenant Fowler⁸ of No. 615 R.A.F. who had been successful in the heavy fighting around Maastricht was shot down and captured near Namur. By the end of May, when the B.E.F. was pinned within a narrow beachhead at Dunkirk, pilots from U.K. bases began to join in these heavy battles and prominent were Flight Lieutenant Olive⁹ of No. 65, Flying Officer Russell¹ of No. 245 and Pilot Officers Stevenson² and Wilkie³ both of No. 266. This handful of men from among the Australians engaged deserve mention not merely for their positive exploits, which though striking were quite unable to effect any large influence on the main battle, but also because their carefree acceptance of any odds epitomised, for their fellows and for the world, the spirit of high endeavour which in other circumstances was to inspire later and better-equipped Australian airmen to help attain the reality of air superiority which alone would make final victory possible. In no form of warfare is example and tradition so essential as in the novel air-fighting arm, for bombing is of little value unless crews press on to their precise targets regardless of opposition; and fighters, unless they try to drive the enemy from the sky, achieve little. There was to the airman no concept such as an "air force in being", the only reality was an air force in action.

It now became necessary for Coastal Command to give increasing air protection within the English Channel and No. 15 Group was called upon to operate in No. 16 Group area where all aircraft were temporarily concentrated on supporting army and naval efforts in the Battle for France. No aircraft of the Australian squadron had hitherto come under fire, but on 28th May, while Pearce was escorting a convoy in the English Channel, he was fired on by shore-based anti-aircraft batteries near Boulogne.

⁵ F-O L. R. Clisby, DFC, 40043 RAF; 1 Sqn RAF. Regular air force off; of N Walkerville, SA; b. McLaren Vale, SA, 26 Jun 1914. Killed in action 14 May 1940.

⁶ In reply to any criticism of the advanced disrepair of his uniform Clisby invariably replied: "It will see me through."

⁷ The quotation is from *Fighter Pilot* (1941) written by an anonymous f-lt of No. 1 Sqn R.A.F.

⁸ Sqn Ldr H. N. Fowler, MC, 39457 RAF. 3 and 615 Sqn RAF; POW 1940-43. Regular air force off; of Adelaide; b. London, Eng, 8 Jun 1916. Killed in aircraft accident 26 Mar 1944. (Fowler managed to escape to England during 1943.)

⁹ W Cdr C. G. C. Olive, DFC, 39469 RAF, 277457. 65 Sqn RAF; comd 456 Sqn 1941-42, Air Def HQ Sydney 1944, Air Def HQ Morotai 1945. Regular air force off; of Yeerongpilly, Qld; b. Bardon, Qld, 3 Jul 1916.

¹ F-O I. B. N. Russell, DFC, 37869 RAF, 609 and 245 Sqn RAF. Regular air force off; of Melbourne; b. Melbourne, 22 May 1911. Killed in action 1 Jun 1940.

² P-O J. W. B. Stevenson, 42158 RAF; 266 Sqn RAF. Regular air force off; of Sydney; b. Melbourne, 17 Sep 1915. Killed in action 2 Jun 1940.

³ P-O J. L. Wilkie, 42170 RAF, 266 and 263 Sqn RAF. Regular air force off; of Fordell, NZ; b. Perth, WA, 1 Nov 1919. Killed in action 2 Jun 1940.

Four salvos each of four bursts were seen, and almost immediately afterwards, six Messerschmitt 110's in formation passed overhead. On 31st May the month which had brought the realities of "total" war so close to the squadron ended with an unsuccessful hunt by Birch for a submarine reported by a merchant ship. The total operational effort curtailed by prevailing bad weather was 436 hours in forty-eight sorties whereas in April 271 hours were flown in twenty-three sorties. In addition to this high achievement, tests with naval depth-charges modified for use in Sunderlands began at Mount Batten on 3rd May and continued with low-level and stick-bombing practices on stationary and moving targets whenever training facilities would allow. In view of possible invasion, defence measures were instituted throughout the station and squadron to combat parachutists. Arrangements were controlled by Flight Lieutenant Dibbs,⁴ the Australian engineering officer, and the squadron was able to render valuable aid to all local-defence groups by the preparation of a photographic mosaic of the Plymouth area.

With the centre of air gravity veering to the south-east of England during May 1940 other Australians in Coastal Command found their task in all waters changed but no less onerous. On the final withdrawal of the Narvik force early in June the old North Sea blocking patrols were replaced by a comprehensive system of parallel-track security patrols serially numbered from SA I from Sumburgh in No. 18 Group and extending round the east and south coasts of Great Britain until SA XX covered Brest in France. The emphasis was no longer on preventing German ships from reaching the Atlantic (which they could easily do by using the deeply-indented Norwegian coast) but on ensuring that no enemy invading force would approach unseen towards the United Kingdom. At the same time pilots were freed from many of the previous restrictions concerning the bombing of enemy merchant ships in war zones. Bombing raids against Norwegian coastal targets were also continued on a moderate scale. All the Australians on Hudson squadrons were active and Flying Officer Fox⁵ of No. 224 had an eventful month, attacking a U-boat on 3rd June, bombing two ships near Bergen on 15th June and sustaining two combats with enemy aircraft. Participation in the Battle for France was naturally less marked but Flight Lieutenant Flood⁶ of No. 235 Squadron, a new Coastal Command unit of long-range fighters which came into the line during May, was engaged in numerous patrols off Dunkirk and on escort duties to ships evacuating other troops from northern French ports. During the general withdrawal he performed on 19th June an important visual reconnaissance of St Malo, and for the rest of the month escorted convoys and gave protection to naval vessels laying the new protective minefields.

⁴ Gp Capt J. Owen Dibbs, OBE, 90. 10 Sqn; comd Base Torpedo Unit 1942-43; SESO NE Area and NW Area 1944-45; Dep Dir Tech Services 1945-47. Regular air force offr; of Double Bay, NSW; b. Sydney, 7 Feb 1914.

⁵ F-O B. L. Fox, 42496 RAF; 224 Sqn RAF. Regular air force offr; of Burwood and Enfield, NSW; b. Granville, NSW, 21 Aug 1914. Killed in action 11 Jan 1941.

⁶ F-Lt F. W. Flood, 37582 RAF; 235 Sqn RAF. Regular air force offr; of Mosman, NSW; b. Roma, Qld, 18 Mar 1915. Killed in action 11 Sep 1940.

After the collapse of Allied resistance in France in June the geographical location of No. 10 took on an entirely new emphasis. New efforts were required of the Australians, as of all squadrons, and while, in general, sorties were flown to maximum endurance to cover as many of the long daylight hours as possible there was much improvisation in tactics. No less than 728 hours were flown in eighty-eight sorties, in itself a record, but truly remarkable for a squadron whose pilots and ground crews had comparatively little experience of Sunderland aircraft. It was indeed necessary to request the temporary attachment of some English second pilots as there was no time to obtain these from Australia. This gave some slight relief to the aircraft crews, but the maintenance parties were on almost continuous duty to keep all nine aircraft fit for the ever-increasing operational demand. On 1st June while the bitter struggle at Dunkirk was absorbing more and more of Coastal Command's aircraft strength, three transports carrying French troops home were escorted from Plymouth to Cherbourg by Flight Lieutenant Bell.⁷ Regular patrols in the Channel were vitally necessary to give added protection to convoys and the unorganised flow of refugee ships from France; and in the first nine days of the month twenty-seven such sorties were made from Mount Batten all with negative results. Unfavourable weather prohibited flying on 10th June and the crews while nominally resting took the opportunity of bringing their aircraft back to full serviceability. Three patrols were possible the following day and on one of them Cohen at 8.45 p.m. received a wireless instruction from Group headquarters to find the British merchant vessel *Anglesea Rose* and divert her to Falmouth. After forty minutes' search the ship was found, and though at first she refused to obey the instructions did so after Cohen ordered the aircraft gunners to fire warning shots across her bows. On 12th June Garing flew to Brest and the following day carried out from there an anti-submarine patrol in an area off Cape Finisterre where submarines had been reported. This patrol which covered the passage of a large convoy through the danger area became necessary because the French Air Force could provide no air support, although within its agreed area of responsibility.

Now that fighting had ceased in Norway more enemy U-boats were returning to the Western Approaches and their commanders and crews, imbued with high hopes of complete German success by quick energetic action, were indeed striking hard and often, and ever-added vigilance was required of aircraft lookouts. On 14th June Bell engaged in two separate hunts for reported submarines, and the following day Garing dropped one bomb on conspicuous and persistent air bubbles that were seen emanating from an oil patch encountered near a convoy. The squadron's first attack on a target positively classed as a submarine occurred on the 17th when Pearce surprised a U-boat on the surface shortly before 8.30 a.m. Pearce was then six miles distant and made an immediate attack before the U-boat could dive. The enemy was at periscope depth (thirty

⁷ F-Lt J. N. Bell, 162; 10 Sqn. Regular air force offr; of Farina, SA; b. Adelaide, 25 Apr 1916. Killed in action 18 Jun 1940.

feet) when a salvo of six 250-lb bombs dropped twenty feet ahead of its track. One minute later, a large dirty-brown patch of oil and bubbles appeared on the surface, followed three minutes later by more bubbles in the central patch and these small eruptions persisted for twenty minutes. The Sunderland remained patrolling the area for three and a half hours but no further signs of damage accrued and the submarine was (correctly) deemed to have escaped with only superficial damage.

Meanwhile events on the Continent had assumed a tragic nature. The withdrawal from Dunkirk had been successful but only at tremendous material cost, and, although she sent some divisions to reinforce the French south of the Somme, Britain was patently unable to provide another expeditionary force adequately armed to withstand the German armoured forces. The attempt by the remaining Allied armies to halt the Germans along the line of the Somme had failed by 11th June by which time Italy had declared war on the Allies. Paris had been declared an open city on the 13th and the German armoured forces swept on to the Loire. Reynaud's government, rent by factions, proved incapable of rallying France, and was replaced on the 16th by that of Marshal Pétain. The British offer of a union with France had been rejected and events were obviously leading up to a request by France for an armistice with Germany. In these desperate hours every attempt was made by British military and political leaders to retrieve the situation, and on 17th June General de Gaulle broadcast an appeal to the French nation to continue the struggle. No. 10 together with R.A.F. squadrons was called on to make special flights during these attempts to dissuade France from surrendering. On the 18th a Walrus amphibian aircraft piloted by Bell and carrying a British intelligence officer departed on a secret mission to Brittany. Nothing further was heard of this aircraft, which was later known to have crashed in foggy conditions at Ploudaniel near Brest. Bell and his wireless operator, Sergeant Harris,⁸ were the first men of No. 10 killed in action. On the same day Podger flew to Lake Biscarrosse near Bordeaux (then the temporary seat of the French Government) carrying as passengers Admiral Sir Dudley Pound⁹ and his staff. On 19th June Lord Lloyd¹ and his staff were similarly carried to Biscarrosse by Garing.

These and other efforts failed and on 25th June France was out of the war, but it was still hoped that some of the colonies and possibly the French Fleet would continue the struggle, so that the whole strategic structure on which the Allies had based their dispositions against the Axis would not be upset. This was of extreme importance now that Italy had joined Germany, but in the event the traditional dependence of French colonial governors on the central administration made the British

⁸ Sgt C. W. Harris, 1730; 10 Sqn. Regular airman; of Manly, NSW; b. Collarenebri, NSW, 29 Aug 1908. Killed in action 18 Jun 1940.

⁹ Adm of Fleet Sir Dudley Pound, GCB, OM, GCVO, RN. C-in-C Mediterranean 1936-39; First Sea Lord and Ch of Naval Staff, 1939-43. Of London; b. 29 Aug 1877. Died 21 Oct 1943.

¹ Rt Hon Lord Lloyd, GCSI, GCIE, DSO. High Commr for Egypt and the Sudan, 1925-29; of Cloud's Hill, Hitchin, Eng; b. 19 Sep 1879. Died 4 Feb 1941.

appeals and exhortations useless. In one of these attempts No. 10 again played a notable part. Flight Lieutenant Cohen embarked Lord Gort,² Mr Duff Cooper³ and their advisers at Calshot on 25th June and flew direct to Rabat in French Morocco, landing in the very narrow estuary of the river which was only a few feet wider than the over-all dimensions of the *Sunderland*. The only alternative was to alight in the open sea which in view of the importance of the mission Cohen adjudged inadvisable. After the mission had gone ashore it became clear that local officials were unsympathetic and even obstructive, the local harbour master on various pretexts attempting to have the *Sunderland* moved to an unfavourable position. Cohen ignored these demands, and further decided that, as it might become necessary to depart in haste, he would not refuel as he already carried enough petrol to enable him to reach Gibraltar. During the evening an urgent code message for Lord Gort was received on the *Sunderland's* radio, and in order to deliver it Cohen called to the shore for a boat. He was persistently ignored and when eventually he inflated the aircraft dinghy and began to paddle himself ashore he was headed off by a police boat and forced to return. It was now rapidly growing dark, and in order to attract attention Cohen ordered all aircraft lights to be displayed; this had the desired effect of bringing a small boat alongside to order the lights to be extinguished. Feigning ignorance of what was required, Cohen once more demanded to be set ashore, and meeting another refusal, he produced his revolver. Eventually he and his second pilot, Pilot Officer Stewart⁴ (one of the attached R.A.F. pilots), found a member of the British Consulate. They were immediately surrounded by Frenchmen and kept apart. The officers were ordered back to the *Sunderland*; if they did not go an armed French guard would be placed aboard. Cohen now pretended that Stewart was in charge and would go back to the aircraft but that he himself wished to spend the night at a hotel. This ruse succeeded and Cohen and the Consular official went to the Bellima Hotel and the code message was delivered to Lord Gort. The police placed further difficulties in the way of the mission leaving the hotel but eventually they did so after a conference with Anglophile Frenchmen in a house outside Rabat, and the whole party re-embarked on the *Sunderland* at 4 a.m. on 26th June. The position was still unenviable for from this time onwards a boat with an armed crew remained circling the aircraft. A few minutes before dawn Cohen started all four engines and taxied at high speed out of the harbour. Despite a heavy sea and the mental and physical strain of the preceding twenty-four hours, he took off successfully and flew to Gibraltar, from where the party returned to England on 27th June. On that day the last

² Field Marshal Viscount Gort, VC, GCB, CBE, DSO, MVO, MC. Ch of Imp Gen Staff 1937-39; C-in-C Brit Field Force 1939-40; IG to the Forces for Training 1940-41; Govr and C-in-C Gibraltar 1941-42, of Malta 1942; High Commr and C-in-C Palestine and Transjordan 1944-45. Regular soldier; of London; b. 10 Jul 1886. Died 31 Mar 1946.

³ Rt Hon Sir Alfred Duff Cooper, GCMG, DSO. First Lord of Admiralty 1937-38; Min of Infm 1940-41; Ambassador to France 1944-47. Of London; b. 1890.

⁴ Sqn Ldr D. A. Stewart, 41220 RAF. 228 Sqn RAF, 10 Sqn, 210, 59 and 203 Sqns RAF. Regular air force offr; of Weybridge, Surrey, Eng; b. Hull, Yorks, Eng, 28 Apr 1915.

of the special missions aimed at rallying French resistance began when Birch flew to Malta to bring back Vice-Admiral Muselier of the French Navy and two other officers. This was the last time that direct routeing over France was possible.

Routine duties of maritime protection remained a heavy burden for No. 10 in the latter half of June, for not only had one of the three available Sunderland squadrons (No. 228 R.A.F.) been transferred to the Mediterranean earlier in the month but there were increasing signs of a determined and sustained attack by the *Luftwaffe* on shipping to add to the toll taken by submarines. A confused and heterogeneous mass of ships of all classes was bringing military and civilian refugees from western France, and all of them had to be given as much protection as possible. Unfortunately this shipping so congested Plymouth Sound that it became almost impossible to operate at night, but throughout the long, hot summer days the Sunderlands were out ceaselessly trying to marshal and protect this evacuation fleet. Some false reports of enemy submarines were broadcast by over-nervous merchant ships and these resulted in much waste effort, but in any case a few Sunderlands could not be everywhere, and perhaps the most important feature of the Australian patrols at this time was the part the flying-boats played in effecting sea rescues. Thus on 21st June Birch located a life-boat with eight survivors and diverted a British destroyer to their assistance. Two days later Flight Lieutenant Courtney⁵ sighted twenty men in another life-boat and under his direction these were rescued by the steamer *Canton*. On the 25th Pearce investigating a very long oil patch strewn with wreckage found two full life-boats and after directing a merchant ship to the position, continued a wider search and reported a further three occupied boats.

On 2nd July the establishment of German bombers on the many air-fields available to them in northern France led to an Admiralty decision to stop all but the most vital Channel convoys within the next seven days, and to route all ocean convoys north about Ireland, thus leaving the South-Western Approaches clear of vulnerable shipping. These decisions naturally took some time to be completely effective and in the interim No. 10 remained chiefly engaged in anti-submarine and anti-aircraft defence of shipping in this region. It was impossible to maintain the same level of flying effort as in the previous month because several of the Sunderlands had to be withdrawn for major technical inspections. On the other hand, with ever-increasing enemy attacks, the proportion of patrols on which positive action accrued rose rapidly. The value of the previous defensive patrols is impossible to assess with precision, but on 1st July came welcome and refreshing proof of a high standard of training when the squadron gained its first positive success against a submarine. Gibson had been sent to escort a convoy which had been attacked during the night 250 miles west-south-west of the Scilly Isles. The submarine had subsequently been heavily counter-attacked with depth-charges by H.M.S. *Gladiolus*

⁵ Gp Capt E. B. Courtney, 143. 10 Sqn; comd 75 Wing 1943-44. Regular air force offr; of Glen Iris, Vic; b. Malvern, Vic, 14 Nov 1914.

and was thought to be damaged. This was indeed the case and it had surfaced at 5.20 a.m. in the hope of leaving the area at high speed before further attack could be made, but shortly after 6 o'clock it was sighted almost simultaneously by Gibson and the lookouts on H.M.S. *Rochester*. Gibson turned immediately and dropped half his bomb load (four 250-lb anti-submarine bombs) in a salvo just ahead of the submarine which first attempted to dive and then re-surfaced. The *Sunderland* attacked again, this time the bombs falling about forty yards from the conning tower. *Rochester* was rapidly closing the position and at 1,100 yards' range opened fire on the submarine, but the German commander had already given the order to abandon and scuttle. Forty-one survivors were picked up from *U26*, and the credit for its sinking was divided equally between *Gladiolus* and Gibson's crew. While it is extremely doubtful that by itself the aircraft attack would have been lethal, it was the final blow which made escape impossible. This was only the second positive success which Coastal Command had gained over German submarines, and in addition to its obvious material value it did much to raise the spirits of all aircrews. Gibson's attack report sent to base at 6.15 a.m. was a model of jubilant terseness: "Have attacked enemy U/Boat. Estimate five hits. Surfaced—sunk—survivors."

On the same day Garing and Cohen encountered at various points in their patrols: a large patch of oil and timber probably from the torpedoed *Clearton* (5,291 tons), three empty life-boats, *Amstelland* (8,156 tons) hove-to with a disabled rudder, and *Clan Ogilvy* (5,802 tons) torpedoed but limping home at slow speed. No signs of the U-boat or U-boats responsible for these attacks were found despite the strictest watch. The 1st July also marked the first air-raid warning experienced by the squadron at Mount Batten. These were to grow into a diurnal menace, forty-one in all occurring during July, grimly emphasising that the whole Channel area was now in the front line. There was at first some unavoidable interruption to the rhythm of life and work but this was soon overcome, and enemy pressure did not at this time radically affect the operations of the squadron. The first air raid specifically directed against Mount Batten itself occurred during the afternoon of 15th July when a single Ju-88, ignoring two patrolling Spitfires, coolly made a dummy run and then released four 250-kilo bombs on the station before making out to sea. No casualties or serious material damage resulted from the three bombs which exploded, but the fourth was only rendered safe after twelve hours by a party of volunteers working under Sergeant Long.⁶

No further incidents were recorded on patrols until a moving oil patch was sighted by Cohen on 6th July some fifty miles south-west of the Scilly Isles. Enemy submarine activity in the area was so marked at this time that it was generally felt tactically justified to make an attack on unseen U-boats in the hope of creating sufficient damage to force them to return to port and accordingly four bombs were dropped on the head of the oil

⁶ F-Lt E. I. Long, 4832. 10 and 461 Sqns. Regular airman; of Ryde, NSW; b. Ryde, 30 Jun 1911.

streak, and more oil then welled to the surface, but not in sufficient quantity to establish proof of further damage. During the same afternoon Courtney attacked another oil streak to the south of this position, again with inconclusive results. In each case a naval vessel was left investigating while the Sunderlands resumed their patrols, for, as anti-invasion precautions on the east coast had drawn off many of the potential anti-submarine ships from the south-west, it was essential that the few aircraft available should police as large an area as possible and not engage in protracted hunts in particular positions. Conditions were still very favourable to the enemy and on 7th July three ships were sunk in the area patrolled by three R.A.A.F. Sunderlands without any sighting of the submarines, which had begun to make attacks from "periscope depth". Gibson actually witnessed the explosion which sank the Swedish steamer *Bissen* (1,514 tons) while Courtney saw both a burning French tanker and an unknown vessel up-turned. This was an exceptionally tragic and disappointing day, and was followed by another lull broken on the 11th when Garing found a 4,000-ton Norwegian ship which had been torpedoed. He reported two life-boats full of survivors clear of the ship before she sank bow first, but again there was no chance to counter-attack the submarine.

The urgent need for information concerning German dispositions along the occupied Biscay coast led to the dispatch on 12th July of a Sunderland on photographic and visual reconnaissance of St Nazaire and Bordeaux. The commanding officer, Pearce, himself undertook this hazardous daylight mission and approached Bordeaux at a height of 4,500 feet screened by only light, scattered cloud. No special camouflage was then in use and the Sunderland must have been easily discernible from the ground, but for an hour and forty minutes it remained conducting a systematic reconnaissance of the area, noting and photographing nineteen merchant vessels anchored at the south of the Gironde. Shortly after noon Pearce set course for St Nazaire where a further twenty-two ships were counted. No opposition had been encountered previously but almost at once seven gun-positions at St Nazaire began firing at him. The Sunderland was twice hit and although little damage resulted fire became so accurately aimed that he was forced to break away and return to Plymouth after some thirty bursts had been observed. Surprisingly, no enemy fighters were seen, although with more and more *Luftwaffe* units establishing themselves throughout northern France, all Coastal Command pilots were prepared for increasing opposition. The Australians' baptism in aerial combat was not long delayed, however, for on the following day Gibson, while returning from escorting a convoy, was attacked at 3 p.m. by a Messerschmitt 110 approximately 100 miles west of Ushant. The enemy took up a position 500 feet above the Sunderland and half a mile on the starboard bow, and then dived to attack, turning quickly to execute a second attack from astern. Several bursts of machine-gun fire were exchanged as the enemy both times bore in to a range of 300 yards. Twenty-five bullets hit the Sunderland and both the port-inner and port-outer petrol tanks were pierced, but fortunately there were no casualties among the crew.

Both midships gun-positions and the tail turret claimed hits on the Messerschmitt which broke away and flew off with smoke trailing from its starboard engine. The same afternoon Cohen was escorting a convoy when his gunners reported a Heinkel 111 bomber approaching at 4,000 feet. Cohen climbed immediately to intercept but the enemy, after hurriedly dropping one bomb, turned away, outdistancing the Sunderland. This swift offensive move by Cohen had, however, obviously prevented a more deliberate and sustained attack on the convoy.

From this time onwards enemy air attacks on convoys increased to a marked extent. Birch encountered an aircraft shadowing a convoy on 14th July but could not bring it to action, and the next day he found the *City of Limerick* (1,359 tons) being attacked by five Heinkels south of Bishop Rock. Despite the considerable odds Birch approached at full speed taking advantage of cloud cover, and surprised one Heinkel which had delivered its attack and was climbing away. The Sunderland's front gunner opened fire at maximum range and then as the enemy turned to port, a second burst was fired into its underside and it went down into the clouds with smoke pouring from it. A second Heinkel approached from astern and dived to attack the Sunderland but broke away before it came within effective range, and a third enemy aircraft made one determined attack from below on the port side closing to 200 yards' range but disengaging when the Sunderland rear turret fired on it. The remaining two Heinkels shadowed Birch's aircraft for ten minutes, but no action resulted and no further attack was made on the merchant vessel.

On 15th July the main duty of No. 10 became the maintenance, in conjunction with the landplane squadron at St Eval, of security patrols covering any possible enemy excursions from the Brest peninsula. The first of these patrols consisted of a Crossover search to the south-west of the Scilly Isles, three circuits being flown on each sortie. These anti-invasion warning flights were executed both by day and night according to the day-to-day probabilities of enemy intentions and formed the end of a long interlocking chain of security patrols which concurrently were being flown all along the eastern and southern shores of Britain. The Sunderland patrols were modified from time to time to avoid detection by the enemy, by moving tracks a few miles north or south, by rotating the patrol tracks in azimuth and by flying reversed circuits, but the area covered remained substantially the same. These flights were almost entirely without incident, but as an insurance against surprise attack they remained an essential commitment until the risk of invasion diminished. Any aircraft available beyond the number for the maintenance of this duty were employed on a variety of urgent tasks. Although the northward diversion of shipping was almost complete, there were still occasional escorts to be flown: nervousness and scare reports of enemy intentions to attack Eire called for several negative reconnaissances at this time. With the significant use by enemy submarines of the French west-coast ports a few tentative anti-submarine patrols were flown when possible close to the 100-fathom line in the Bay of Biscay.

The mid-month spate of activity was followed by a fortnight of dull routine flying, but this lull was again sharply broken at the end of the month. Early on 28th July Birch, who had been dispatched on anti-submarine patrol, encountered no less than three pairs of Ju-88's but no action ensued. Later in the morning, at 9.50, he found four life-boats in an area strewn with wreckage from the *Auckland Star* (11,400 tons). After completing his allotted patrol he returned and having carefully judged the state of the sea, alighted alongside the life-boats at 4.15 p.m. to take off any survivors who might need medical attention. There were no injured men, however, and, as a trawler was seen approaching, Birch decided not to embark any of the survivors and returned to base. After the *Sunderland* left and before the trawler could pick up all four life-boats, rough weather caused two boats to drift away and these eventually arrived in England under their own sail. This was the first time a successful ocean landing had been made by No. 10 and demonstrated that in reasonable conditions and with proper precautions it was possible for *Sunderlands* to bring aid in circumstances in which assistance from ships might be too slow.

On 31st July Garing was detailed to escort the armed merchant cruiser *Mooltan*, which, after a refit at Plymouth, was routed independently for South Africa. This ship had obviously been sighted by enemy reconnaissance aircraft the previous day for it was subject to repeated air attack. Three and a half hours after joining company with *Mooltan* west of Land's End Garing intercepted a Ju-88 which dropped two bombs hurriedly and then, at 8.55 a.m., flew off. At 12.50 p.m. two more Ju-88's appeared and prepared to dive-bomb the ship. Garing attacked the rearmost enemy and forced it to pull away so that its bombs fell astern of the target. A third salvo was dropped a few minutes later by an enemy aircraft which dived out of cloud, and this was also engaged by the *Sunderland*'s front- and rear-turret gunners as it pulled out of its dive. A final attack came at 1.20 when another Junkers was intercepted by the *Sunderland* and dropped its bombs in the sea. In view of these persistent attacks, however, the *Mooltan* was re-routed to Liverpool and escaped from the danger area. When Garing's first report arrived three Blenheim fighters had been sent by No. 15 Group, but they failed to find the ship, whose defence depended on the *Sunderland*. The captain of the *Mooltan* highly commended the crew of the aircraft.

July also saw the first of many oversea detachments of R.A.A.F. *Sunderlands*. Podger flew to Gibraltar on the 8th to reinforce the obsolescent London-class flying-boats of No. 202 Squadron R.A.F. Possible attack by the Italian Fleet, and the danger of energetic French reprisals for the bombardment of their ships at Oran on 3rd July made the period at Gibraltar one requiring ceaseless vigilance. Long-range reconnaissance sweeps were made in the western basin of the Mediterranean on 11th, 14th and 16th July but all proved negative. On the 19th Podger was sent to photograph Casablanca, and two days later a patrol and photographic reconnaissance was made from Oran to Cape de Gata. Other similar

sorties followed and a request was made for a second Sunderland from Mount Batten. Accordingly Birch was dispatched on the 29th but, on the way, he attacked an enemy Dornier 18 flying-boat, and in an inconclusive action sustained damage from cannon shells and was forced to abandon the sortie. An aircraft captained by Gibson was immediately substituted and this joined Podger at Gibraltar the same day.

On 2nd August both Sunderlands were airborne shortly after midnight to cooperate with the aircraft carrier *Argus*, from which twelve Hurricanes were to fly to Malta from a position south of Sardinia. The Sunderlands were to act as life-boats should any of the Hurricanes be forced into the sea, and they also carried twenty-three airmen who were to service the fighters at Malta. The next day, while Podger returned to Gibraltar with spares for the Londons of No. 202, Gibson flew to Alexandria returning on 4th August with General Wavell⁷ and his staff as passengers. He was again joined at Malta by Podger who had brought two tons of Hurricane spares and ammunition, and the two Sunderlands left in company late on the 6th in order to pass through the Sicilian Narrows before dawn. Refuelling at Gibraltar both aircraft made an uneventful flight to Mount Batten on 7th August.

Despite the individual brilliance of men scattered throughout the R.A.F. and the consistently fine effort maintained by No. 10, perhaps the most important contribution to the technique of air warfare made by an Australian during this period was in the realm of photographic reconnaissance. The whole development of air fighting in the war of 1914-18 had sprung in the main from attempts to assert and at the same time to deny to the enemy the advantages of aerial reconnaissance, and after that war air photography had been recognised by the R.A.F. as one of the primary needs of training. Air reconnaissance was now required to cover not only the front line between opposing armies, but also the vast enemy hinterland where were based the strategic air force and the widespread factories, dumps and training grounds which supported the armed forces, and it became quickly evident that even the relatively fast Blenheim aircraft of No. 2 Group, Bomber Command, specially trained and detailed for these duties, were tactically unable to penetrate to their objectives and secure photographs at a tolerable cost, as casualty rate was 18 per cent of sorties. While gallant but unavailing attempts were being made by the bomber-reconnaissance aircraft, a new and unorthodox means (vastly more economical in aircraft expenditure and effective in results) of achieving the ultimate aim of systematic photographic reconnaissance over the enemy areas best calculated to yield the information for planning and achieving the defeat of Germany, was put forward by F. S. Cotton.⁸ Cotton was a resolute and adventurous aeronautical engineer, businessman and sports-

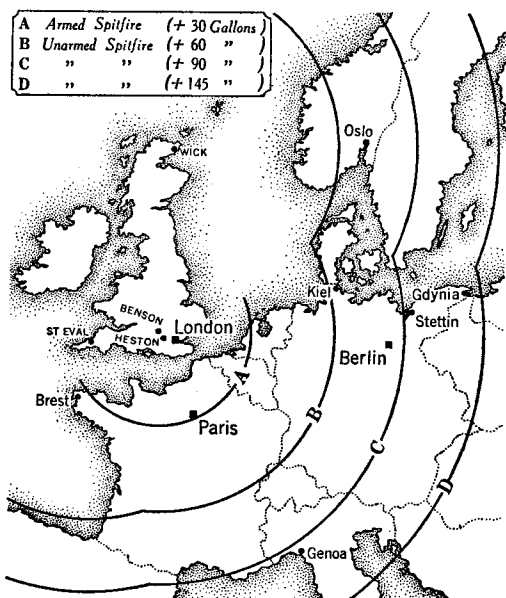
⁷ Field Marshal Rt Hon Earl Wavell, GCB, GCSI, GCIE, CMG, MC, GOC-in-C Southern Cd 1938-39, ME 1939-41, India 1941-43, SW Pacific, Jan-Mar 1942; Viceroy of India, 1943-45; b. Colchester, Eng, 5 May 1883. Died 24 May 1950.

⁸ W Cdr F. S. Cotton, OBE, 75444 RAF; comd 2 Camouflage Unit (later PRU) RAF. Company director; of Brisbane; b. Bowen, Qld, 17 Jun 1894.

man and had a unique knowledge of flying and photography over Europe. For some years while touring the Continent his mind had been actively engaged on the probable photographic needs of any impending war. In collaboration with Flight Lieutenant Longbottom⁹ he evolved the idea of using prototype fighter aircraft, stripped of armament and specially groomed for maximum speed, so that the performance of photographic reconnaissance aircraft should always remain in advance of the contemporary enemy fighter.

The forceful representations of Cotton obtained a hearing among the more enlightened, but this new conception, although basically simple, cut directly across R.A.F. methods and organisation for photography, as there was no trained personnel to interpret any air photographs except those taken at medium level with the standard F24 camera of 5-inch focal length. The dead hand of officialdom was opposed to the project but Cotton, with an honorary commission as a wing commander, was given the opportunity to prove by results his brilliant conception. What was to become eventually the Photographic Reconnaissance Unit, of incalculable worth to all Allied services, started its career in an apologetic aura of secrecy as No. 2 Camouflage Unit, operating from a spare hangar at Heston on 23rd September 1939. The original complement of the unit was Cotton's own two civilian aircraft and two long-nosed Blenheims, which by adroit "rubbing down" and tuning were improved some twenty-five

A	Armed Spitfire	(+ 30 Gallons)
B	Unarmed Spitfire	(+ 60 ")
C	" "	(+ 90 ")
D	" "	(+ 145 ")



Photographic Reconnaissance: December 1940-February 1941.

miles per hour in performance. These aircraft were not really fast enough for the purpose but the request on 30th October for two Spitfires met strenuous opposition from Fighter Command. One Spitfire finally materialised and was sent to France to operate over western Germany, where it proved very successful. In January 1940 No. 2 Camouflage Unit became the Photographic Development Unit with four Spitfires at Heston and six in France. In forging and testing this new instrument, the dynamic

⁹ Sqn Ldr M. V. Longbottom, DFC, 37656 RAF; 2 Camouflage Unit (later PRU) RAF. Regular air force offr; of Liverpool, Eng; b. Liverpool, 13 Feb 1915. Killed in aircraft accident 6 Jan 1945.

individualism of Cotton, impatient of service delay and methods, was of the utmost importance. He had great difficulty in convincing those above, and those employed by him, of the vital nature of the work, but his indomitable energy and single-mindedness surmounted all these obstacles, so that in eight months a complete organisation was evolved out of nothing. There was so much tradition to be overcome that even pilots posted to Photographic Development Unit were prone to question the worth of their employment and Cotton had to point out with some force that "it is much easier to teach a man to fly a Spitfire than to teach a Spitfire pilot with the wrong temperament to do the job we are attempting".

Cotton's unit quickly demonstrated that photographs could be taken successfully at high altitude anywhere within range of his aircraft at a very economical casualty rate, but his efforts were still early decried by the established Bomber Command Photographic Interpretation Unit, which declared that the scale of photographs taken at great height defied interpretation. In March, however, by the introduction of a Wild stereoscopic machine belonging to a civilian firm, these difficulties disappeared and the paramount value of the Photographic Development Unit became fully apparent. Bomber Command then immediately pressed for control of the new unit, which, however, was retained nominally under Air Ministry supervision until the fall of France.

When the B.E.F. was forced to evacuate the Continent in June, Britain was cut off from some of the most fruitful sources of information concerning enemy intentions at the moment when knowledge of them was most vital, and this necessitated the harnessing of all reconnaissance means to gauge enemy preparations for invasion. This situation naturally brought to a head the whole question of ultimate control of the Photographic Development Unit. In practice Cotton had been allowed much latitude during the formative period, and this had undoubtedly helped it to reach a high degree of efficiency in a minimum time. It was felt, however, that this valuable but unorthodox unit should now come finally under the guiding hand of a purely service department, and "Cotton's Club" as the unit was both affectionately and angrily called, transferred on 18th June to Coastal Command R.A.F., being renamed as the Photographic Reconnaissance Unit. Cotton relinquished his commission; the Air Council at the same time put on record its indebtedness for "the great gifts of imagination and inventive thought . . . brought to bear on the development of the technique of photography in the R.A.F."

One other Australian, Desmond Sheen, was associated with the Photographic Development Unit in the formative days. Transferring to No. 212 Squadron in April 1940 he conducted several successful flights over northern Europe and later over Italy and Sardinia. Evacuated to England by way of North Africa and Gibraltar between 17th June and 12th July he then remained at Heston for only a fortnight before returning to his old fighter squadron.

CHAPTER 2

THE BATTLE OF BRITAIN AND THE GERMAN BLOCKADE

IN mid-June 1940 it was necessary for both protagonists to review their strategy for the future conduct of a war, which, with the imminent withdrawal of France, had become a struggle between a purely maritime nation and a purely continental power. The issues were abundantly clear and were stated by Mr Churchill on 18th June:

What General Weygand called the Battle of France is over. I expect that the Battle of Britain is about to begin The whole fury and might of the enemy must very soon be turned on us. Hitler knows that he will have to break us in this island or lose the war Let us therefore brace ourselves to our duty, and so bear ourselves that if the British Commonwealth and Empire lasts for a thousand years men will still say, "This was their finest hour."

Thus, while the United Kingdom, now almost stripped of military forces fully equipped to fight a modern war, had to shelter behind sea power and its extension air power until strong enough to renew the struggle, Germany had two main strategic plans from which to choose. As an immediate project in keeping with the avowed German policy of "short wars", military invasion and conquest was the obvious path, but Admiral Raeder and other influential Germans advocated a long-range plan of blockade and bombardment.

Preparations for these two complementary offensives began early in July as soon as Hitler's hopes of a negotiated peace had been shattered by a scornful refusal to compromise. During the succeeding months, while the struggle grew fiercer, Germany still attempted to employ the shadow of threats instead of the reality of action by psychological warfare directed against Britain and neutral countries. On 11th July Hitler proposed to make an intimidatory speech in the Reichstag in order that "the contents would become known to the British public" accompanied by a carefully-timed air attack on Liverpool. These were to emphasise the uselessness of further resistance. Inspired statements and broadcasts continued to press the same point. On 6th August, for instance, General Lander, a former head of the German Coastal Air Forces, declared that "England must collapse under the rapidly-increasing shortage of shipping and transport brought about by war on British shipping and attacks on British harbours . . . the British Isles reduced to their own resources can no longer live." Despite this propaganda campaign, however, it soon became obvious that the decision must be reached on a military and not a political plane.

Bearing in mind the comparatively short campaigning period still left in 1940 (for any cross-Channel invasion in winter would have been hazardous from natural causes alone) Germany had three months to train an expeditionary force, collect a fleet of transports and solve supply problems. The absolute prerequisite, however, was that both the British

navy and the air force should be utterly crushed and deprived of bases from which they could interfere with the invasion fleet. Raeder was under no illusion that his naval units or even his U-boats could do much in this regard and the whole task devolved on the *Luftwaffe*. Thus, on 2nd July, from newly-acquired bases in France, German aircraft began to attack shipping in the English Channel. The size of the formations so employed increased until on 10th July¹ some seventy aircraft were used against convoys off Dover and Margate. Attacks against convoys and south-coast towns continued on an increasing scale until 7th August in an attempt to test and weaken the R.A.F. defences. Then came a ten-day all-out effort to overwhelm Fighter Command by sheer weight of numbers. The heavy battles of this second phase were not decisive and after a brief lull the *Luftwaffe* began on 24th August to bomb airfields and the outer defences of London in preparation for a full-scale day and night assault against the capital which began on 7th September and lasted for three weeks. Thereafter mass daylight attacks by German long-range bombers were abandoned and the final stage of the Battle of Britain was marked by high-flying fighter-bomber activity by day and concentrated night-bombing with London still the main objective.

When the issue was joined early in July Fighter Command disposed fifty-two operational squadrons, all but three of which had been heavily engaged in previous battles. To meet the onslaught from an estimated 1,800 German bombers and dive bombers backed by 1,200 fighters, the R.A.F. could provide No. 11 Group in the south-east with only twelve squadrons of Hurricanes and six of Spitfires.² This force of fewer than 220 aircraft could on occasion be reinforced by units from adjacent fighter groups (Nos. 10 and 12) if not themselves under attack—but as the weeks passed the necessity to keep No. 11 Group at maximum strength caused progressive dilution and weakness in all other areas. That this small but highly-trained force was not indeed swept from the sky as Goering intended was due partly to the superiority of the English eight-gun fighters and the incalculable advantage of an efficient radar-reporting and controlled-interception scheme; partly to the inspired high endeavour with which the R.A.F. pilots faced their task; and partly to faulty German tactics which tied their own fighters too closely to their bombers and thus deprived them of initiative in combat. Even though Fighter Command was sorely weakened when the *Luftwaffe* abandoned its assault at the end of October, it had nevertheless won a victory as decisive as Trafalgar, for the German High Command, realising that the prerequisite of air supremacy had not been gained, had already halted preparations for the invasion of England.³

¹ This date is generally regarded as marking the commencement of the "Battle of Britain" proper.

² A sqn normally held 18 aircraft and 26 pilots on strength but operated as a fighting unit with 12 aircraft. Thus all subsequent reference to a "sqn" in the air will indicate 12 fighters.

³ Gen Keitel, Chief of Combined Services Headquarters, issued a top secret memorandum on 12 Oct: "The Fuehrer has decided that from now on until the spring, preparations for 'Sea Lion' shall be continued solely for the purpose of maintaining military and political pressure on England" "Sea Lion" was the German code name for the invasion of the United Kingdom.

Any brief analysis must necessarily over-simplify a struggle of such epic proportions as was the Battle of Britain. Some thirty Australians who had survived the hurly-burly of May and June fought in Fighter Command during these vital months of constant readiness for action. Australian records which have been preserved are skeletal, patchy and unsatisfactory, but do give some glimpse of the tumult in the clouds, although the details of much that was worthily and nobly done have passed from human knowledge because the men did not live to tell the tale. Ten Australians were killed and one became a prisoner, and it is worth noting that the distinction subsequently earned by those who survived gives, no less than their deeds, the measure of the loss to the R.A.F. of those who did not. This group, though a minute portion of "The Few" extolled in the Prime Minister's stirring tribute, were scattered among many squadrons, but did achieve much.⁴ Flight Lieutenant Sheen rejoined No. 72 Squadron then based in Northumberland on 29th July and was thus well based when on 15th August in addition to day-long raids along the south coast, the Germans sent a two-pronged attack just before noon against Sunderland and Driffield. This was a rash tactical move for the area was well out of range of the Me-109 so that the bombers were supported only by twin-engined Me-110's. Sheen himself destroyed two of the attackers—a Ju-88 and an Me-110—in a particularly outstanding victory in which more than thirty enemy aircraft were shot down.⁵ He wrote subsequently "I remember vaguely lots of aircraft blowing up and people baling out all over the sky and bombs dropping into the sea." This German force had been sent from Norway and Denmark to turn the flank of the main Fighter Command defences, but the disastrous experiment was not repeated. No. 72 moved south to Biggin Hill at the end of August and Sheen led a flight in the heavy engagements around London, shooting down three enemy aircraft and was himself obliged to bale out twice in three days. On the second occasion he was wounded and his Spitfire had plunged down from 25,000 to 800 feet before he could disengage himself from it. Flight Lieutenant Olive also gave a vivid account of German attacks against fighter airfields: "They came over and bombed our base. On one occasion we were lined up ready to take off when the Jerries came into view behind us, diving to the attack. Our only chance lay in getting into the air quickly. Instead of each section taking off in turn, we all opened our throttles and raced across the aerodrome in a terrific scramble. I don't know how we managed to get off without a mishap. A hundred and thirty bombs were dropped behind and around us during that furious rush across the ground. But we did get off, and once in the air we turned and stung the raiders plenty for disturbing our beehive." The pilots themselves, while vaguely realising the larger issues, were absorbed in an ever-present urgency in which only the immediate

⁴ "Never in the realms of human conflict was so much owed by so many to so few."

⁵ The original claims were much higher. Wartime assessments credited Fighter Cd with 180 victories in all actions on this memorable day, but subsequent research has established that total German losses were 76.

task had significance, and in this spirit of straining every nerve they met succeeding events gladly and without fear. Only bare details have been preserved of the combats of Flight Lieutenant Walch⁶ of No. 238 Squadron, but after his death on 10th August one of his fellow pilots wrote: "He was completely careless of his own welfare or success and whenever inexperienced boys had to go into battle he personally shepherded them and supervised their work. It was while he was trying to rescue two boys from a hopeless position that he was killed." Other Australians to achieve special fame were Flying Officers Glyde⁷ and Cock⁸ of No. 87 Squadron, Flight Lieutenant Hughes⁹, Flying Officer Curchin¹ and Flight Lieutenant Mayers², men who between them were credited with the destruction of thirty German planes before the Battle of Britain ended.

While Fighter Command was repulsing the large-scale *Luftwaffe* attack designed to eliminate the R.A.F. and drive the Royal Navy from southern waters, Bomber Command and Coastal Command were counter-attacking the enemy amphibious forces gathering in Belgian, Dutch and French ports for the projected invasion itself. The general-reconnaissance and photographic-reconnaissance units of Coastal Command were mainly pre-occupied in maintaining the comprehensive system of security patrols covering all approaches to Britain, but the long-range fighter units, when not cooperating with Fighter Command, performed daring visual reconnaissance of enemy ports, and escorted light bombers of No. 2 Group Bomber Command, and of the Fleet Air Arm to attack shipping concentrations, airfields and gun positions in enemy-occupied territory. The medium bombers of Bomber Command were ordered on 13th July to operate against fifteen primary targets in Germany (five aircraft depots, five airframe-assembly factories and five synthetic-oil installations) and with a few minor alterations this task remained their standard commitment, although early in September, due to the apparent stage of enemy preparations, the medium bombers were diverted to anti-invasion targets, the heaviest attack staged coming on 20th-21st September when 140 bombers operated. According to the German Naval War Diary the results of British air and naval attacks on the invasion fleet by this date were:

	<i>Shipping previously available</i>				<i>Lost or damaged</i>
Transports	-	-	-	168	21 (12.5 per cent)
Barges	-	-	-	1,697	214 (12.6 per cent)
Tugs	-	-	-	360	5 (1.4 per cent)

⁶ F-Lt S. C. Walch, 40063 RAF. 151 and 238 Sqns RAF. Regular air force offr; of Sandy Bay, Tas; b. Hobart, 16 Feb 1917. Killed in action 10 Aug 1940.

⁷ F-O R. L. Glyde, DFC, 39983 RAF; 87 Sqn RAF. Regular air force offr; of Perth, WA; b. Perth, 29 Jan 1914. Killed in action 13 Aug 1940.

⁸ Sqn Ldr J. R. Cock, DFC, 40674 RAF. 87 Sqn RAF, 453 Sqn, 54 Sqn RAF, attchd RAAF 1943-45. Regular air force offr; of Grange, SA; b. Renmark, SA, 3 Mar 1918.

⁹ F-Lt P. C. Hughes, DFC, 39461 RAF. 64, 234 and 247 Sqns RAF. Regular air force offr; of Haberfield, NSW; b. Cooma, NSW, 19 Sep 1917. Killed in action 7 Sep 1940.

¹ F-Lt J. Curchin, DFC, 42396 RAF. 600 and 609 Sqns RAF. Regular air force offr; of Grange Park, London; b. Hawthorn, Vic, 20 Jan 1918. Killed in action 4 Jun 1941.

² W Cdr H. C. Mayers, DSO, DFC, 77976 RAF. 601 Sqn RAF; comd 94 Sqn RAF 1941, 234 Wing RAF 1941-42. Managing director; of London; b. Sydney, 9 Jan 1910. Killed in action 20 Jul 1942.

These losses in themselves were insufficient to retard the invasion timetable, but Raeder was acutely conscious that Bomber Command and British light naval forces were still intact and he feared far greater losses at sea should the expedition sail. The German Admiralty therefore pressed for the substitution of submarine and air blockade of Britain for the projected invasion, and, as we have seen, this viewpoint prevailed.

Of the Australians engaged on these duties in Coastal Command, eight out of twenty-six were killed—about the same as lost their lives in Fighter Command. The flights of most of these men were far removed from the main centre of pressure, but Flight Lieutenant Flood of No. 235 based at Thorney Island had his full share of both fighter defence and offensive strikes, for the fighter-Blenheims were virtually in the firing line. On 21st August he shot down a Henschel aircraft into the sea off Le Havre. Three days later while on local-defence duties his was the only one of three Blenheims not shot down by R.A.F. fighters which mistook their identity. Flood failed to return on 11th September from one of the many sorties to escort Albacore bombers in an attack on Calais harbour. Similarly, in Bomber Command, of forty-seven Australian pilots actively engaged five were killed and six became prisoners of war within the period of the Battle of Britain. Though lacking the heart-stirring appeal of massed fighter combat, their patrols and raids were just as vital, in the same manner that in more primitive fighting the watchful eye and sword were complementary to the shield. Of the many raids one at least deserves mention: an attack on 12th-13th August against one of the two very heavily-defended bridges which carry the Dortmund-Ems canal over the River Ems. This canal was of particular importance in the German communication system, as it formed one of the main outlets to the sea for Ruhr coal and manufactures. Ten Hampden crews had been specially trained in moonlight low-level attack technique over the Lincolnshire fens for the perilous coup. In the actual raid five Hampdens created a diversion by attacking adjacent locks and gates and river craft, while the remaining five bombers attacked the heavily-defended bridge. Flight Lieutenant Mulligan³ and Flying Officer Ross both of No. 83 Squadron flew as No. 2 and No. 3 in this formation which met a withering fire from ground gun-positions. All five aircraft attacked and both Australians were shot down. Photographs taken the next day showed that the bridge had been breached and the water drained out of the canal arm.

For No. 10 Squadron R.A.A.F., more fitted to oppose the secondary German plan of attrition by blockade, the appearance in northern and western France of large numbers of enemy aircraft heralded new tasks, for it was no longer practicable to escort shipping through the South-Western Approaches and thence to Bristol, Milford Haven and Liverpool. A consequent decision to route all ocean convoys to the north of Ireland brought to Coastal Command urgent demands for air cooperation which

³ F-Lt A. R. Mulligan, DFC, 40058 RAF, 267825; 83 Sqn RAF. Regular air force offr; of Sydney; b. Bingara, NSW, 23 Feb 1915. Mulligan was captured but Ross was killed.

were difficult to fulfil immediately. Very few airfields existed in Scotland and Northern Ireland, and Coastal Command had previously maintained only one squadron of obsolescent Stranraer flying-boats and one squadron of Avro Ansons in the north-west, which at this time was not protected either by a radar chain or by a group of fighters. Seven landplane bases were projected but only two were to come into use by May 1941, while the recent rejection of the Botha aircraft with which Anson squadrons were to have re-armed, and the current necessity for constant security patrols off the east coast, seriously retarded adequate reinforcement of the area.⁴ It was natural, therefore, to divert from the south-west some of the flying-boats whose crews already had experience of commerce protection, and at the end of July two Sunderlands of No. 10 Squadron R.A.A.F. together with a similar detachment of No. 210 Squadron R.A.F. were operating from Oban on the Firth of Lorne. During August two more Australian Sunderlands and a maintenance party were sent as reinforcements as the need for aerial reconnaissance continually mounted. German submarines had already begun to use Lorient in France as a re-arming and refuelling base, and this measure, by eliminating time lost on passage, enabled the enemy to maintain twice the previous number of U-boats in the actual operational area.

Thus, throughout the winter of 1940-41, although No. 10 Squadron remained officially based at Mount Batten, and responsible for maintaining whatever patrols were required in that area, the greater part of its flying was in fact done by the Oban detachment. Four aircraft were constantly maintained at Oban, but as all major maintenance facilities were at Mount Batten, the opportunity was usually taken to relieve crews at Oban as their aircraft became due for periodical inspection, and there was thus a constant interchange of men between the two bases.

In the face of these new requirements relatively little flying was done from Mount Batten in August 1940. Anti-invasion patrols were ordered only when the Photographic Reconnaissance Unit at St Eval failed to secure regular photographic proof of the state of enemy preparations at Brest. Thus nine patrols, each of approximately twelve hours' duration, were flown between 16th and 24th August off the Brest peninsula, and another on 30th August, but nothing was seen except French fishing vessels. Four short anti-submarine patrols were also conducted, but, although two depth-charges were dropped on a suspicious wake seen north of the Scilly Isles on 16th August, sharks were later observed in the area and it is doubtful whether a submarine was present. This comparative lack of flying gave the squadron a welcome opportunity to conduct both ground and air training especially in the use of A.S.V. (Mark I) which was then being made available for Sunderlands.⁵ At the begin-

⁴ The bases were: Limavady, Ballykelly and Eglinton in Northern Ireland; Benbecula and Tiree in the Western Isles; Kaldajarnes and Reykjavick in Iceland. Limavady and Kaldajarnes were the first in use.

⁵ A.S.V. (Air-to-surface-vessel) was a radar aid designed to give indication of range of any solid object near the aircraft. Its scan was at this time only along the direct line of flight and range was restricted. It was mostly used for navigation checks near land in bad weather.

ning of the month another secret device known as M.D.S. (magnetic detection of submarines) was also tested in one of the Sunderlands under the supervision of scientists from the R.A.F. Experimental Establishment, Farnborough.⁶ Wing Commander Knox-Knight⁷ arrived from Australia and took command of the squadron on 16th August, Squadron Leader Pearce, whose initiative and leadership had done so much to place the squadron on a high level of operational efficiency, becoming flight commander. Towards the end of the month (on 26th-27th August) Plymouth was subjected to an air raid lasting seven hours. Many bombs fell in the Sound and one exploded after a delay of sixty hours quite close to the shore but fortunately no damage was done either to the moored aircraft or to the station itself.

Meanwhile at Oban twenty-two convoy patrols, six anti-submarine sweeps and a special reconnaissance were conducted by the Australian detachment in their first month. Operations closely approximated to those from Mount Batten during June, for convoys had as yet failed to settle down to strict discipline and there were insufficient naval vessels to ensure proper marshalling. Bad visibility, mechanical breakdowns, emergency changes of course during the night, dispersal after enemy attack, together with bad station-keeping and indifferent navigation, left many supposedly convoyed vessels without the protection of naval escort. The ease with which these "stragglers" fell victims to submarine attack, and the large effort necessary to rescue survivors, further detracted from the amount of protection which could be given to convoys themselves, and at times the situation verged on chaos. Storms in mid-Atlantic aggravated the situation, for convoys were reaching their intended rendezvous positions with naval escort sometimes days late. The chief feature of Sunderland patrols thus became the herding of ships which had become detached from or had not yet made contact with their convoy, although some searches instituted at the request of convoy naval escorts were unsuccessful. Several times aircraft were able to coordinate the rescue work of naval vessels seeking survivors of ships sunk in night attacks, and they also reported by radio the plight of ships which had been disabled but not sunk by torpedoes, so that tugs could be sent to their assistance.

The general pattern of operational requirements was now comparatively fixed for the autumn and winter of 1940-41 and the main anxiety of Coastal Command was to implement these requirements by as large a total of operational flying hours as shortage of aircraft, unsuitable weather

⁶ Unlike A.S.V. which reacted only to visible objects, M.D.S. was designed to detect submarines below the surface by the deflection of a needle when the aircraft flew within the magnetic field of the hidden submarine. At further experiments in Oct trials with a friendly submarine gave successful results. The prototype was of very delicate construction and the difficulties of making a robust service set caused the project to be shelved in order to allow prior preoccupation with radar development. The project was revived in 1942 for use by aircraft at Gibraltar but was again abandoned. An American version of this device known as M.A.D. was, however, later employed by USN Blimps and specialised Catalina sqns in 1943-44 and resulted in some successes at Gibraltar.

⁷ Air Cmdre E. G. Knox-Knight, CBE, Comd 10 Sqn 1940-41, RAF Stn Pembroke Dock 1941, 5 SFTS 1943; SASO 1 Trng Gp 1943; comd 2 Trng Gp 1943-45; SASO HQ NW Area 1945. Regular air force offr; of South Yarra, Vic; b. Melbourne, 25 Feb 1904. (Son of Lt-Col E. Knox-Knight, 37 Bn AIF; killed in action, France, 10 Aug 1918.)

and preoccupations of an emergency nature would allow. Over thirty routine security patrols were flown from Mount Batten during September. This was the peak of the danger period, for ships and self-propelled barges were collected in Dutch, Belgian and French ports on a scale commensurate with the task of transporting an invading army. The heightening fury of the *Luftwaffe's* struggle to eliminate the opposition of the R.A.F. and to destroy naval port facilities, together with the rumours and warnings emanating from neutral sources, all suggested that the threatened invasion would be mounted at the first favourable moment. Nothing was found at sea in the Brest area, however, except the usual fishing vessels and though, towards the end of the month, encounters with enemy aircraft became frequent, only inconclusive combats resulted with Dornier flying-boats and Heinkel bombers, which evinced little desire to meet Australian attacks. Three patrols were flown at the end of the month to investigate reports that suspicious warships were off Cape Finisterre in Spain, but nothing untoward was found.

Although the routine patrols which were the essence of the squadron's tactical employment were thus negative in result, an extremely interesting sortie, illustrating one facet of the many ancillary tasks of Coastal Command, was made by Squadron Leader Gibson on 4th September. He was sent to search for three life-boats from the Norwegian *Tropic Sea* (5,781 tons) which had first been captured in the Indian Ocean by an enemy auxiliary warship, and then challenged while on passage to Europe under a German prize crew by the British submarine *Truant* on 3rd September. The Germans had scuttled the ship and taken to the life-boats. British prisoners aboard *Tropic Sea* had already been taken off by the submarine and Gibson was to pick up German survivors and bring them to England for interrogation. The three life-boats were found during the afternoon sailing on a south-easterly course towards France, two of them having rigged a mizzen and the third a main mast. Gibson circled for some time to judge the surface conditions of the sea and also to give the impression that he was willing to help, but no attempt was made by the Germans and Norwegians to slacken sail and in fact oars were produced and attempts made to row. Accordingly the *Sunderland's* front gunner fired a short burst ahead of the leading boat and they all hove to. Having reported by wireless to base, Gibson alighted on the sea and after a short delay succeeded in bringing alongside the smallest boat which contained ten men. Two of these spoke a little English, and when asked whether there were any Germans among them answered in the affirmative. The ten men were searched for firearms, taken aboard the *Sunderland* and their boat set adrift. Gibson then took off and, circling twice to secure photographs, set course for Plymouth. He then went down to the wardroom where the prisoners were under armed guard and asked which were the Germans. They replied that they were all Norwegians and that twenty-seven Germans and twenty-one Norwegians were in the other boats. This information was immediately transmitted to base, but it was too late to send another aircraft that day, and for Gibson to have attempted

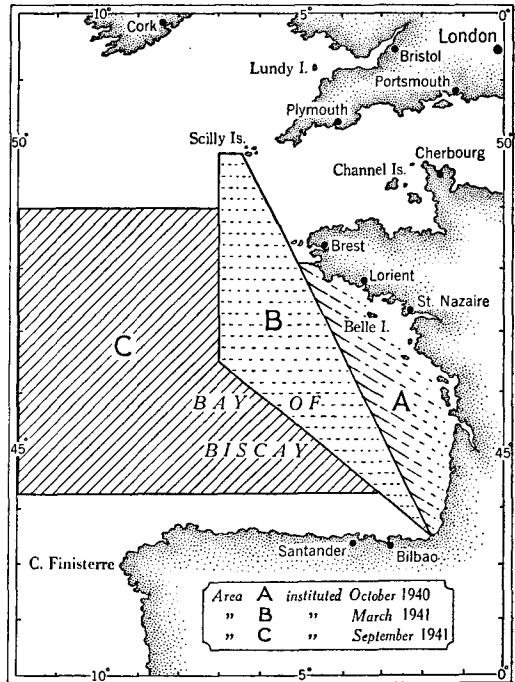
to alight again would have been too dangerous. Two Sunderlands carrying interpreters resumed the search next morning but failed to find the boats because of the weather. The remaining life-boats managed to reach Spain undetected and the Germans claimed rights under International Law as shipwrecked mariners and were eventually repatriated.

While the eyes of the world were still fixed on the Homeric air battles being waged over south-east England, shipping losses in the terminal convoy area were increasing. Although station-keeping in convoy had improved, there were still insufficient escort vessels and aircraft to give full protection, especially as the enemy submarines had begun to operate farther out in the Atlantic beyond the area of densest air cover. German submarines now attacked almost exclusively by night and had evolved the practice of attacking at high speed on the surface, thus becoming in effect submersible torpedo boats, whose presence could not be detected by naval Asdic. A number of aircraft sweeps were organised to search for U-boats lying in the track of convoys, but these were cancelled after a short trial in favour of putting all available aircraft on direct convoy-escort duties. The reporting of stricken ships and diversion of other ships to rescue castaways remained the most valuable positive contribution of the Sunderlands, and although no opportunity came to attack a submarine, convoys escaped lightly when air cover could be provided. Of several rescues the most notable, made possible by the vigilance of the Sunderland crews, came on 25th September when Squadron Leader Garing found a life-boat from the liner *City of Benares* (11,081 tons). This ship had been carrying children evacuated from danger areas to sanctuary in Canada and the United States under the auspices of the Children's Overseas Reception Committee. Rough seas made it impossible to alight, so he sent a message to base asking for assistance and remained circling until a relief Sunderland appeared. He dropped a life-jacket containing a note informing the children in the boat that help was coming; they were picked up later that day by a destroyer diverted to the position.

Unfortunately at the very time when enemy submarine tactics demanded a maximum of air escort at night, it became increasingly difficult to provide this protection. Oban had grave limitations being frequently blanketed by fog and low cloud at night, while sea conditions in winter months often prohibited night take-off. This factor was sharply emphasised when unpredicted bad weather enveloped the base on 1st September and caused the loss of one of the squadron's aircraft. It had returned safely through execrable weather and alighted normally on the flarepath, which had drifted close to a small island without the attendant marine craft being able to see the danger. The Sunderland had not lost speed when the starboard wing-tip and nose struck the island. A Sunderland of No. 210 was lost the same night while trying to return to Oban, and although air-to-surface-vessel radar was proving a great aid to coastal navigation in bad weather it was obvious that night sorties from Oban could not always be relied on. Accordingly on 22nd September Headquarters of Coastal Command ruled that it was "essential that a Sunderland be

placed forthwith at a base from which it can be sure of operating", and this led to frequent sub-detachments of R.A.A.F. Sunderlands to Stranraer on Loch Ryan, which base, however, was also subject to severe north-west gales. On 24th September Pearce flew the Air Officer Commanding No. 15 Group to Bowmore on the Isle of Islay and to Helensburgh in the Clyde to investigate the possibility of advanced bases being constructed there. Bowmore was especially important, for although a shallow saucer-like anchorage easily whipped by high winds into heavy seas which made take-off difficult, it was the most westerly base then practicable, and became available for operations later in the year.

Routine security patrols to the west of Ushant continued to be flown from Mount Batten during October 1940, though with the onset of winter, the prospects of immediate invasion had decreased and some at least of the enemy invasion fleet had dispersed. There was, however, increasing evidence of German preparation of Biscay ports as bases for the U-boat offensive and possibly for naval or armed merchant ships engaged in commerce raiding. The routine patrols were modified in time and position to accord with Admiralty estimates of U-boat tracks to and from their operational area, and from 10th October the Sunderlands flying these patrols were also required to cooperate with friendly submarines which were then blockading the U-boat bases.⁸ Orders given to the Australians were that all east-bound U-boats seen by aircraft were not to be attacked, but their position, speed and course reported so that the British submarine could make interception. All west-bound U-boats could, however, be attacked as they had already passed the screen. Unfortunately the presence of friendly submarines often caused doubt in the minds of aircrafts'



Areas in the Bay of Biscay where all enemy shipping might be attacked.

⁸ HM Sub *Cachalot* sank *U51* on 20 Aug 1940 and HM Sub *Thunderbolt* sank the Italian sub *Tarantini* on 15 Dec 1940. These were the only successes gained in this area by any forces during the winter 1940-41.

crews, for though friendly dispositions were advised daily by the Admiralty, aircraft were sometimes dispatched before the relevant information had been received. In these circumstances Pearce on 17th October sighted a surfaced submarine nine miles away. It was west of all previous restriction areas but to obviate mistake he challenged it by Aldis lamp as he approached at a low height to make a closer inspection. The Sunderland was attacked with machine-gun fire from the conning tower, thus eliminating any doubts, and Pearce turned quickly to attack dropping four 250-lb anti-submarine bombs 150 yards ahead of the swirl left by the diving submarine. No positive results were seen after this attack and the aircraft was shortly afterwards diverted to search for enemy destroyers which had put out from Brest. Further sorties from Mount Batten followed the next day to search for these destroyers which were thought to be preparing to attack Atlantic convoys, but, after the destroyers were found by Beaufort 0/217 on a southerly course, the Sunderlands, on 21st October, were again ordered to maintain the cooperative patrol with friendly submarines. The total number of sorties during the month was not high. Twice Sunderlands were dispatched to Egypt with important passengers—on 12th October the Secretary of State for Air and the Governor-General of the Sudan, and on 28th October the Commander-in-Chief, Far East Command. Special crew training for winter conditions also had the effect of restricting operations.

Unfavourable weather prevented flying in late October and early November. As landplane squadrons in the south-west had also been considerably hampered, the whereabouts of the enemy destroyers of the Brest flotilla again caused great uneasiness and on 5th November a system of patrols was instituted to locate their movements. As an outer screen, the Sunderlands were ordered to maintain a constant patrol between latitudes 48 degrees and 49 degrees north and beyond longitude 8 degrees west, while Beauforts of No. 217 Squadron scoured areas nearer the coast. The situation was aggravated by the report of the attack by the German "pocket-battleship" *Admiral Scheer* on an Atlantic convoy on 5th November. The possibility of this ship returning to a French port caused the cover patrols to be strengthened and all sorties from Mount Batten until the 16th were on this duty without, however, discovering any enemy surface units. During the first of these flights on 7th November Flight Lieutenant Birch sighted an enemy submarine but it dived quickly and no reliable indication was left on spume-tossed heavy seas to act as an aiming point for an attack. After 16th November patrols reverted to the normal pattern designed principally to intercept U-boats issuing from Lorient and travelling west about Ireland towards the focal convoy area in the North-Western Approaches. Birch was diverted on 18th November to search for and rescue survivors from the *Nestlea* (4,274 tons) which had been bombed to the north of his patrol area. The ship was found low in the water but with no visible signs of life aboard, nor could any life-boats be found in a search which continued until dusk. It was later

established that the crew had landed safely in Eire. Operational patrols were thus singularly uneventful and this added to rather than detracted from the strain of constant cancellation of tasks, the extra anxiety of boat watches during gale warnings and the extremely unpleasant flights in unstable air over the stormy Atlantic in winter.⁹

For the first time enemy air activity began to interfere with operational efficiency when mines were laid in Plymouth Sound at frequent intervals during November. This entailed delays for flying-boats until the taxi-ing and take-off areas were searched and declared safe. A very heavy air raid on Plymouth followed on the night of 27th-28th November during which one of the hangars was burnt out, one Sunderland destroyed by fire, another sunk at its moorings and the oil tanks at Turnchapel just outside the station boundary set ablaze. Next morning the remaining aircraft, which had suffered minor damage from bomb splinters, were flown to Pembroke Dock to avoid further loss should the burning oil flow into the harbour.

Most of the Sunderland patrols undertaken from Oban in the uniformly bad weather of October were also without incident, and although as much night cover was given as possible, many flights had to be curtailed or cancelled because of sea conditions at this base. The spirits of the Australians were raised, however, by a remarkable rescue effected on 17th October. Flight Lieutenant Podger was returning from an all-night patrol, when, just before dawn, he investigated a faint light some thirty miles from the convoy and discovered an occupied life-boat. After two attempts he managed to alight and took on board twenty-one survivors from the *Stangrant* (5,804 tons) which had straggled from its convoy and been sunk four days previously. The seamen were successfully flown to Oban and gave information concerning a further sixteen survivors in another life-boat which was then sought and found by naval vessels. Later in the month, however, weather conditions grew worse and this deterioration continued into November when flying was possible on twelve days only which caused the monthly flying total to decrease to a mere 287 hours. Three flying-boats of Coastal Command were lost at their moorings at other bases during gales which lashed the west coast during the month and, though Oban escaped the full force, heavy seas often prevented crews getting aboard their aircraft and certainly prohibited patrols when conditions were at their worst. Furthermore, except for a few periods of milder weather, night patrols were not possible at all and there was a general recall of all flying-boats to land before dusk. Enemy submarines gained considerable successes while aircraft were not present, and long-range FW-200 aircraft working from Bordeaux outside the gale centre also began to sink ships in the North-Western Approaches.¹ When Sunderlands were able to fly, the Australians' chief task was once more the

⁹ It was normal practice to put a skeleton crew aboard to prevent the aircraft from dragging their moorings in bad weather. If necessary engines would be run to keep the strain off the mooring cable.

¹ In Dec 1940 U-boats sank in the NW Approaches 31 ships aggregating 176,000 tons compared with 26 ships aggregating 120,000 tons in Nov 1940.

grim search for survivors from vessels attacked while they themselves were helplessly weatherbound. During the month naval vessels were directed to the position of several life-boats.

It was not until 5th December that two Sunderlands were able to return from Pembroke Dock to Mount Batten. The first operational sortie took place on 8th December and was a night search for enemy submarines. These patrols, which began at dusk and continued until half an hour from moonset, replaced the previous security and daylight anti-submarine patrols. Radar search was used but the patrols were flown very infrequently due to weather conditions and shortage of aircraft and had no positive results.² To add to the maintenance difficulties which invariably result from rough seas and the enforced idleness of flying-boats at anchor, two accidents causing structural damage to Sunderlands occurred at Mount Batten towards the end of the month. Concurrently weather imposed equally radical limitations on flying from Oban, where patrols followed the pattern of previous months except that on 27th December Flying Officer Hodgkinson³ made a determined but unsuccessful attack on a submarine encountered while he was searching for a convoy. The combined effort of the two detachments, which had fallen progressively since the summer, in December amounted only to twenty-six sorties totalling 216 hours on patrol. This forced inaction was the more galling to the Australians in that the storms also split convoys and caused many ships to straggle. These fell easy victims to the U-boats, which were not hindered in their operations to the same degree as aircraft. When aircraft could fly therefore they were apt to meet the confused conditions which on 11th December confronted Flying Officer Costello,⁴ who had recently graduated as a captain of aircraft. Costello made contact with his allotted convoy only to be sent away by the senior naval officer of the naval escort to search for two ships torpedoed 100 miles away. He next met a group of five ships which directed him towards some life-boats and after exchanging visual signals with three rescue trawlers he duly found the life-boats, only to be diverted to search for an apparently damaged U-boat before he could bring the trawlers closer to the life-boats. It was well after dark before these distractions permitted him to return to the convoy he was originally sent out to protect. Often, too, convoys were forced badly off their route by storms and no contact at all was made by the searching aircraft.

² There was some justifiable criticism at this time from crews concerning the usefulness of such night patrols. Thus F-Lt Havyatt, tardily ordered to perform a night patrol on 8 Dec, found that no meteorological forecast was available covering the expected duration of his flight. A verbal briefing proved largely incorrect and the weather encountered on his outward flight was entirely unsatisfactory for a moonlight patrol, the cloud being 10/10 at 500 ft with continuous rain. Similarly on 21 Dec Birch queried the meteorological forecast card which predicted 7/10 cloud but was verbally assured that visibility would be from 6 to 7 miles. Actually even in Plymouth Sound the visibility was not more than one mile and from time of take off at 4.30 a.m. until dawn objects were not visible on the surface of the sea at greater distances than 200 yards because there was no moonlight filtering through the complete overcast.

It was further appreciated that even if a target was discovered, the chances of converting a sighting into an attack under such conditions were infinitesimal.

³ W Cdr V. A. Hodgkinson, DFC, 463. 10 Sqn; comd 20 Sqn 1942, 40 Sqn 1944-45. Regular air force offr; of Homebush, NSW; b. Ashfield, NSW, 17 Oct 1916.

⁴ W Cdr J. P. Costello, 404. 10 and 20 Sqn; comd 42 Sqn 1944-45. Regular air force offr; of Elsternwick, Vic; b. Heidelberg, Vic, 17 May 1917.

There was little improvement in the war at sea during January 1941 for although the R.A.A.F. crews at Oban flew an increased number of patrols, their effect was again limited to remedial action by assisting scattered convoys and ships already disabled by enemy action. Long-range German Focke-Wulf aircraft had already begun to cooperate with the U-boats, and besides reporting the position of Allied convoys so that the underwater craft could manoeuvre into a favourable position for night attack, these aircraft achieved considerable success in independent bombing attacks. This aerial reporting partly nullified the effect of Coastal Command in forcing U-boats deeper into the Atlantic and resulted in enemy activity beyond the range of aircraft working from Oban. This in turn led Knox-Knight on 2nd January to investigate the possibility of operating his Sunderlands from Loch Foyle in Northern Ireland but when he proposed to establish administrative headquarters there on 20th January this move was rejected by No. 15 Group on the grounds that the shallow storm basin of the loch presented undue hazards for winter use. When the Coastal Command depot ship *Manela* was ready late in February to operate Sunderlands from Loch Foyle, plans were already in hand to divert the detachment of No. 10 even farther west to Loch Erne. Meanwhile only two tasks, both within the first week of January, were allotted to the parent unit at Mount Batten, which suffered heavily from enemy air raids during the month and, indeed, was not called upon for any further operations for a period of almost seven weeks during which only training activity was possible.

No. 19 Group of Coastal Command, which formed at Plymouth early in February 1941, concentrated more on bombing and mining U-boat bases than in conducting anti-U-boat patrols. The Sunderlands were finally called upon on 2nd February to institute a blocking patrol of Brest where a German heavy cruiser believed to be of the *Hipper*-class had been located. This surface raider had already attacked one convoy routed to Sierra Leone and as it was apparently ready to sail on a similar operation Birch was dispatched in extremely adverse weather to conduct a night patrol near Ushant to locate and shadow the vessel should it indeed sail. He was relieved at dawn by another aircraft piloted by Flight Lieutenant Havyatt,⁵ but neither crew made any enemy sighting, and the cruiser was later identified from photographs as being still in harbour.

The Sunderlands at Mount Batten were also required to make four flights with important passengers to the Middle East which had become temporarily the centre of political and military gravity. These trips entailed the absence of aircraft and crews for periods varying from three days to three weeks and were not without hazards, as on the night of 14th February when Havyatt flew Mr Anthony Eden⁶, Sir John Dill⁷ and

⁵ W Cdr H. G. Havyatt, 391. 10 Sqn; comd 107 Sqn 1943, 20 Sqn 1943-44. Regular air force offr; of Edgecliff, NSW; b. Hawera, NZ, 19 Jul 1919. Killed in action 21 May 1944.

⁶ Rt Hon Anthony Eden, MC. Sec for Dominion Affairs 1939-40, for War 1940, for Foreign Affairs 1935-38, 1940-45; b. 12 Jun 1897.

⁷ Field Marshal Sir John Dill, GCB, CMG, DSO, GOC II Corps BEF 1939-40; CIGS War Office 1940-41; Head of Brit Representation on Combined Chiefs of Staff 1942-44; b. 25 Dec 1881. Died 4 Nov 1944.

COMBAT REPORT.

Sector Serial No. _____ (A) _____

Serial No. of Order detailing Flight or Squadron to
Patrol _____ (B) _____

Date _____ (C) 26.7.40.

Flight, Squadron _____ (D) Flight: B Sqdn.: 238

Number of Enemy Aircraft _____ (E) 3 ME.109's

Type of Enemy Aircraft _____ (F) ME.109

Time Attack was delivered _____ (G) 1200 hours.

Place Attack was delivered _____ (H) 25-30 miles S. of Portland

Height of Enemy _____ (J) 18,000 feet

Enemy Casualties _____ (K) 1 ME.109 destroyed confirmed

Our Casualties _____ (L) NIL

Aircraft _____ (M) NIL

Personnel _____ (R) _____

GENERAL REPORT _____ (R) _____

6 Nov 48 Blue Header.
Squadron ordered to patrol Swanage at 10,000 feet. Time up 1142, down 1230. I arrived on patrol flying at 10,000 feet with section on left of C.O. (Green Section). Squadron received order that bandits S.W. of Portland at 12,000 feet. I saw 3 ME.109's about 25-30 miles S of Portland at about 14,000 feet. I put Section in line astern and climbed behind. 2 ME.109's in Vic. formation and one loose on right. I took loose one and fired one short burst (1 sec.) from a shallow quarter deflection. ME. half rolled then dived vertically down, then went into spin and broke up, the wings dropping off and fuselage going into sea.

Both Blue 2 (P/O CONSIDINE) and Yellow 1 (Sgt MARSH) confirmed.

Rounds fired 40 per gun, 320 total.

Signature

O.C.

S. C. Walch
Section Blue
Flight B
Squadron

Squadron No. 238

S.C. WALCH, F/Lt.



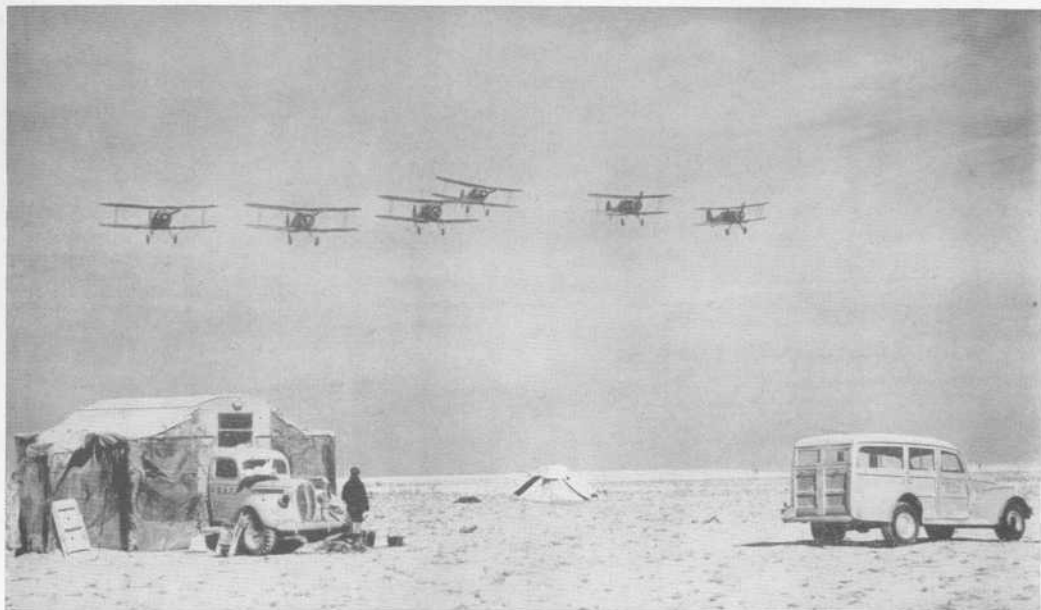
(R.A.A.F.)

No. 10 Squadron working party clearing up the wreckage of a Sunderland flying-boat burnt out during the air raid on Mount Batten, 28th November 1940.



(R.A.A.F.)

A general view of R.A.F. Station, Mount Batten, after the raid of 28th November. The smoke in the background is rising from the Turnchapel oil tanks.



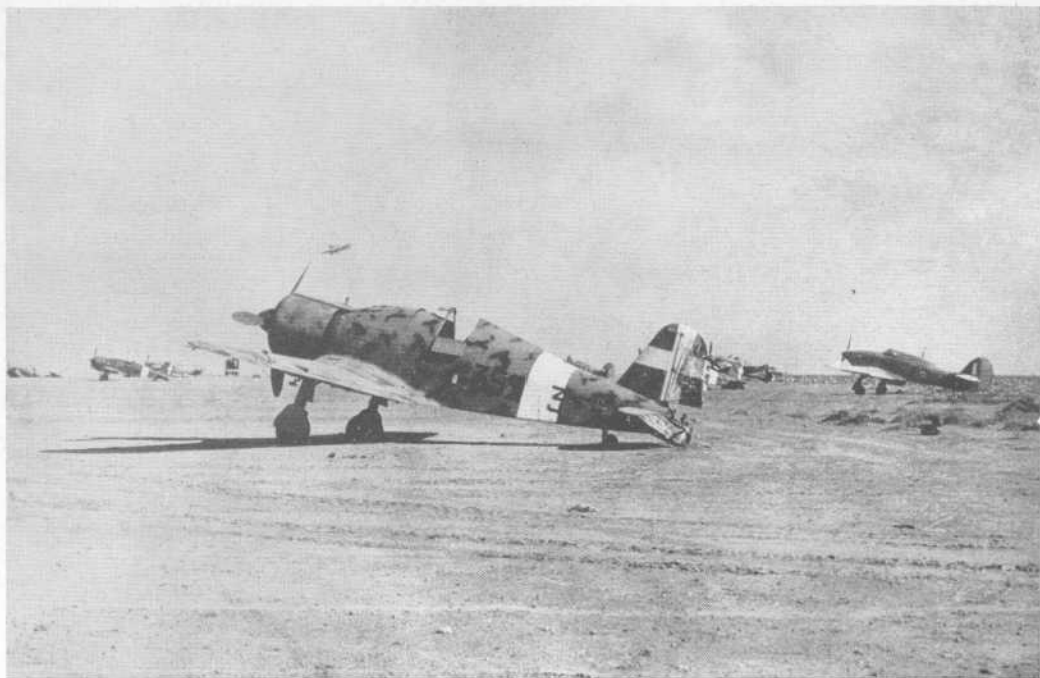
(Air Ministry)

Gladiators of No. 3 Squadron returning to a landing ground near Salum from a patrol over Bardia in January 1941. The squadron's mobile operations room is in the left foreground.



(Air Ministry)

Examining a map on the tail-plane of a Gladiator fighter, No. 3 Squadron pilots are preparing for an operation over Bardia, January 1941. Left to right: F-O's J. R. Perrin, J. McD. Davidson (squatting), W. S. Arthur (almost obscured), P. St G. Turnbull; F-Lts G. H. Steege, A. C. Rawlinson; F-O V. East; —————; Sqn Ldr I. D. McLachlan (commanding officer); F-O A. H. Boyd.



(Air Ministry)

Sidi Rezegh airfield, after its capture in January 1941, showing abandoned Fiat G-50 fighters.
To the right are several Hurricanes while another is making a landing approach.



(Air Ministry)

Hurricanes on an airfield in northern Palestine, June 1941. They belong to No. 80 Squadron, R.A.F. from which were drawn the aircraft taken to Cyprus by pilots of No. 3 Squadron to block any attempt to reinforce the French Syrian garrison by air.

War Office officials to Gibraltar. On the way to Cape Finisterre the weather was moderate, but thereafter it deteriorated rapidly. Return to base was considered but rejected because of the inevitable delay.

After having flown for two and a half hours through unbroken cloud the Sunderland became practically unmanageable and Havyatt decided to climb to avoid the turbulence. At length the aircraft broke cloud at 7,000 feet but flying conditions remained atrocious, violent up-currents frequently raising the nose of the aircraft until the Sunderland was almost at stalling attitude, or alternating down-draughts sending it plunging wildly into cloud again. The pilots struggled continuously with the controls until dawn, when the fierceness of the storm subsided. Cape St Vincent was not reached until just after 10.30 a.m. and as there was barely enough fuel remaining to enable him to reach Gibraltar, Havyatt signalled a request for naval vessels to patrol the Strait to rescue the passengers in the event of a forced alighting. He finally touched down at Gibraltar with almost empty tanks after this nightmare journey. The storm was reported as the worst in Spain and Portugal for almost a century; another Sunderland of No. 95 Squadron which had left Plymouth in company with Havyatt was forced down in Portugal.

A substantial reinforcement of one officer and seventy-five airmen arrived from Australia early in February and enabled some easing of the strain under which maintenance crews in particular had been working. All major inspections for the Sunderlands were still performed at Mount Batten, where increasing air attacks, the necessity to maintain four fully-serviceable aircraft at Oban, the frequent Mediterranean detachments of indeterminate length, and the increasing amount of technical equipment being incorporated into operational aircraft had all aggravated maintenance problems. The enthusiasm and skill of the ground tradesmen who worked extremely long hours, kept the squadron fully prepared to fulfil its many commitments. Although too often this invaluable routine work tends to be overlooked, the squadron was several times complimented during this difficult period for its high serviceability rate and a special commendation was made on 9th February to a small party of fitters, Flight Sergeant Parker,⁸ Sergeant Deste,⁹ Corporals Grainger¹ and Pegg,² who, in seven hours under blackout conditions, removed an engine from a Sunderland, fitted and tested a new one, making the aircraft immediately available for operations.

Meanwhile at Oban an additional share of the convoy patrols in February 1941 fell on the Australian detachment, as No. 210 Squadron was below strength, having recently supplied three experienced Sunderland crews to form No. 95 Squadron for operations off West Africa where

⁸ F-Sgt G. E. Parker, 2100; 10 Sqn. Regular airman; of Crows Nest, NSW; b. Liverpool, NSW 27 Nov 1910.

⁹ F-O J. G. R. Deste, 3766. 10 and 43 Sqn. Regular airman; of Boolaroo, NSW; b. Nambucca, NSW, 8 Mar 1913.

¹ F-Lt G. M. A. Grainger, 3746; 10 Sqn. Regular airman; of Parramatta, NSW; b. Singleton, NSW, 25 Feb 1911.

² W-O J. A. Pegg, 207657; 10 Sqn. Fitter and turner; of Sydney; b. Sydney, 18 Jun 1914.

enemy submarines had begun an offensive complementary to the main one in the North-Western Approaches. Yet again the Sunderlands in their patrols were able to assist stragglers and disabled ships and, although most patrols were uneventful, on 22nd February Hodgkinson by attacking and forcing a U-boat to dive gave time for the convoy, which he was escorting, to steam clear of the danger area.³ Hodgkinson's attack, which owing to a faulty electrical circuit was made with only part of the normal bomb load, was unsuccessful, but he quickly homed the corvette *Periwinkle*, which attacked with depth-charges while the Sunderland flew off to report to the convoy.

Although the possibility of German invasion of England was assuming the same strength as in 1940, there were indications in March 1941 that the main enemy strategic policy was the alternative one of comprehensive blockade, for the appearance in the Atlantic of the battle cruisers *Scharnhorst* and *Gneisenau* indicated that attacks by surface raiders were to increase at the same time that air and submarine warfare were being intensified. Coastal Command counter-measures to this spring offensive were facilitated by the transfer of Hudson squadrons to Northern Ireland, by re-arming three flying-boat squadrons with Catalina aircraft which were now arriving from the United States, and by redoubled bombing and mining attacks on French west-coast ports. Bomber Command was also called upon to increase its attacks on Brest, now patently the proposed base for surface raiders. No. 2 Group (Blenheims) also took over the security patrols on the east coast of Britain previously flown by the Hudsons, which were transferred to Northern Ireland. Better flying weather allowed all squadrons to complete more patrols, No. 10 raising its monthly total by almost 25 per cent to 404 hours. The Sunderlands at Mount Batten were used for convoy patrols to the west of Ireland during the early part of the month, and on 9th March Squadron Leader Cohen sighted and attacked a U-boat in position 51 degrees 53 minutes north, 18 degrees 28 minutes west. In order to conserve fuel the two depth-charges on the port side had been hauled inboard during the search for the convoy, and when the U-boat was sighted suddenly in poor visibility only two miles distant there was no time to wind them out before an immediate attack was made on the crash-diving submarine. Two depth-charges set to explode at 100 feet and 150 feet respectively were dropped in this initial attack and then the remaining two were dropped ahead on track set deep at 400 feet. The convoy was found within half an hour and destroyers directed to the position of this attack. The U-boat was assessed as "probably slightly damaged". On 5th March, another successful encounter, this time with some enemy aircraft, resulted while Birch had been searching near Skellig Lighthouse in south-western Eire for three life-boats from the torpedoed *Baltistan* (6,803 tons). Two Junkers 88 aircraft, which had shadowed him earlier in the morning, reappeared at noon and attacked Birch's Sunderland from the port

³ At this time an average of 14 German and 3 Italian subs operated in the NW Approaches.

bow. They turned half a mile astern and pressed a second attack home to a range of 250 yards, while Birch dived down low on the water, and his rear-turret and dorsal gunners fired effective bursts. The leading Junkers broke away to starboard, but was again hit and half a minute later it dived steeply into the sea. Meanwhile the second enemy aircraft also turned away to starboard, and after jettisoning two bombs, flew in a wide arc, disappearing from view in a rain shower with smoke trailing from its starboard engine nacelle. Only one bullet struck the Sunderland which then continued its search.

The Australians were next required to renew the blockading patrol off Brest, as the cruiser *Hipper* was again apparently preparing to sail, and five sorties were flown on this duty between 11th and 16th March. The ship was not found and enemy aircraft seen during these patrols made no attacks. The squadron then became temporarily inoperative after two heavy enemy air raids on the nights of 20th to 22nd March when the station breakwater was cut in two, squadron offices, operations room and No. 2 hangar damaged, and the electric power house put out of action for forty-eight hours. Three Sunderlands received damage from bomb and anti-aircraft shell fragments and were unserviceable for some days. Thus when the *Scharnhorst* and *Gneisenau* reached Brest late in the month it was necessary to recall one of the Sunderlands from Oban to perform the routine blockading patrol. The detachment had continued its work with convoys and in addition to another inconclusive attack on an enemy submarine on 5th March the Sunderlands frustrated several air attacks on convoys. Arrangements were made to operate from Loch Erne in Ireland so that convoy escort could be maintained even farther out into the Atlantic, but this proposal lapsed and the new Catalina squadrons were transferred to this base.

It had now become essential to provide in No. 19 Group sufficient suitable aircraft to ensure that no unheralded move from Brest could be made by the *Scharnhorst* and *Gneisenau*. As it was impracticable to base heavy fleet units at Plymouth to guard against a breakout, aircraft capable of maintaining constant day and night patrols were the only alternative. This inevitably led to the return of the Australian detachment from Oban, and, after a few normal convoy patrols early in April, they were transferred to Pembroke Dock where it was hoped that enemy raids would not interfere with operations as they had recently done at Mount Batten. In April the other aircraft and crews were also united with the detachment at Pembroke Dock, only the squadron maintenance section remaining at Mount Batten. A very comprehensive patrol pattern had been instituted off Brest⁴ and, from 10th April, the Australians' duty was to maintain, in conjunction with Hudson aircraft from St Eval, a daily Crossover patrol from one hour after dawn until two hours after dusk. Some twenty such patrols were flown by the Sunderlands during

⁴ (1) A nightly line patrol by one radar-equipped Wellington from dusk to dawn. (2) A daily Crossover patrol by one ASV Sunderland or Hudson from one hour after dawn to two hours after dusk. (3) One daily pre-dusk visual reconnaissance off the Rade de Brest. (4) One nightly patrol by a torpedo Beaufort.

the month, and they were all negative in their main object, although minor incidents were frequent, and the unpredictable hazards of weather on 29th April caused the loss of one of the squadron's aircraft returning from this patrol. Unable to find Pembroke Dock in bad visibility the captain attempted an emergency night landing in the Irish Sea after his petrol supply had all but failed. Five survivors of this crash were rescued next day by the steamer *Busiris*.

The arduous convoy patrols of No. 10 during the winter of 1940-41 typified the general air contribution towards the defeat of the secondary enemy strategy of blockade. These defensive duties were shared by other Australians in Coastal Command, where Wing Commander Curnow,⁵ newly arrived from Australia, assumed command of No. 224 Squadron R.A.F. on 15th March. Another newcomer, Flight Lieutenant Hennock,⁶ joined No. 206 R.A.F. on 12th February and was sent to Northern Ireland in charge of a detachment of Hudsons to be used to intercept FW-200 convoy-raiders. A third R.A.A.F. pilot, Flight Lieutenant Oakley,⁷ began to operate with No. 217 Squadron R.A.F. from St Eval during January. The Beauforts of this squadron were at this time used for security patrols, anti-shipping reconnaissance, and strikes against French harbours and airfields, and Oakley made several offensive sorties within his first week on duty. He failed to return from an attack against the cruiser *Hipper* at Brest on 1st February. Flying in advance of the main force in appalling weather he sent a message (presumably after attacking) that he would attempt to return with only one engine functioning. This was a hopeless task as the wind was blowing at forty knots from the north and the other aircraft had already been recalled. Air-sea rescue searches failed to locate any trace of Oakley or his aircraft.

In November 1940 Bomber Command turned from anti-invasion targets to oil refineries and storages, aluminium and aircraft-component factories in large German towns. The conscious aim of these attacks was "to demonstrate to the enemy the power and severity of air bombardment and the hardship and dislocation which will result from it". There was, however, only an average of 250 night bombers and crews available for action during this period and forces of 100 on any single target were rare. Indeed conservation of effort was necessary especially in bad weather as the rate of wastage within Bomber Command was frequently higher than that of available replacements. The raids themselves achieved no such successes as did the German raids on Coventry and London, but with the introduction of small numbers of four-engined aircraft and heavier bombs, this counter-offensive gradually achieved greater weight

⁵ Gp Capt T. C. Curnow, 59. Comd 23 Sqn 1939, 2 EFTS 1939-40, 5 EFTS 1940-41, 224 Sqn RAF 1941-42; SASO HQ North-Eastern Area 1943; comd 5 SFTS 1943-45; SASO 11 Gp 1945. Regular air force offr; of Brisbane; b. Ballarat, Vic, 7 Aug 1911.

⁶ W Cdr K. S. Hennock, DFC, 211. 206 Sqn RAF; comd 459 Sqn 1942, 2 Sqn 1943-44; Dep Dir Operational Requirements RAAF HQ 1944-45. Regular air force offr; of Kings Vale, NSW; b. Young, NSW, 8 Feb 1918.

⁷ F-Lt R. A. Oakley, 215. 86 and 217 Sqn RAF. Regular air force offr; of Yallourn, Vic; b. Brisbane, 24 Feb 1917. Killed in action 1 Feb 1941.

and precision.⁸ Targets in Italy were also scheduled for attack while a moderate effort was maintained against invasion ports in the Low Countries and France; and against airfields from which the enemy mounted his night-bombing attacks. At all times the main strategic bombing force was subject to diversion against enemy naval targets at the request of the British Admiralty, and early in 1941 Brest as well as the north-eastern German ports began to receive an increasing part of Bomber Command's attention, culminating on 9th March in a directive from the Prime Minister that for the next four months all energies should be devoted to defeating the German blockade, by attacks on German factories making components for U-boats and long-range aircraft, and attacks on the air and naval bases. Many Australians won awards for individual acts of bravery and for constant application to their arduous routine duties, but their operations cannot be analysed satisfactorily as they were integral parts of the endeavour of their various commands. In the main the more successful Australian airmen were again those who had already operated with distinction, though others who had earlier been engaged on training or staff duties began to take a prominent part in the battle.

⁸ In a raid against Emden by 6 aircraft of 3 Gp on 31 Mar-1 Apr two 4,000-lb bombs were dropped for the first time by specially modified aircraft.

CHAPTER 3

FIRST LIBYAN CAMPAIGN

TO both the Australian airman and the Australian soldier the term Middle East has a special significance, for there were born the traditions of the service to which both belong, although the significance of the Gallipoli campaign has eclipsed those in Mesopotamia, Palestine, Syria and Egypt. Participation in Middle East campaigns in two wars was influenced by Australia's interest in preserving the Mediterranean route from England to the Pacific. From 1919 onwards an Australian link with the defence of British interests in this area was maintained by individuals who had chosen a career within the Royal Air Force, some, like Air Chief Marshals Mitchell and Longmore, Air Marshal Drummond and Air Vice-Marshal W. A. McCloughry rising to high positions of command there between the wars. Indeed most Australians within the R.A.F. had some knowledge of Middle East conditions because of the growth of the system of "control without occupation", by which air power largely replaced standing armies for internal security purposes in this zone. Drummond, then an acting squadron leader in charge of "H" Unit R.A.F., consisting of two aircraft only, between January and June 1920 played a leading part in quelling tribal disturbances in the Sudan. Later in the same year, a similarly small force put down the revolt of the "Mad Mullah", and, at the Cairo Conference of 1921, this "control without occupation" was adopted as a cheaper and more effective means of policing parts of the Arab world than had hitherto been possible. Thus throughout the next decade the Middle East was the main training ground and deployment area for the R.A.F. There was little fear of external aggression and the main task continued to be the maintenance of internal peace.

This situation changed radically in 1935 with the Italo-Abyssinian crisis. The threat of an apparently powerful Italian Air Force was sufficient to force a withdrawal of British naval units from Malta to Alexandria, and even there they were vulnerable to Italian bombers operating from airfields outside the range of available R.A.F. aircraft based in the Suez Canal zone. This crisis passed but valuable experience was gained by a force of nine squadrons under Ashton McCloughry which moved forward into the desert with an advanced headquarters at Mersa Matruh. "Operations," wrote Mitchell, the air officer commanding-in-chief, "would undoubtedly have been seriously affected by the dust . . . This had a bad effect on engines, aeroplanes, guns and bomb gear . . . Mechanical transport suffered to an even higher degree than aircraft engines, but the effect on personnel was as serious as that on material . . . The factor of dust today may be as important as that of mud in former wars." The technical and tactical difficulties inherent in this situation were patiently studied during the succeeding years when war seemed ever more probable

as with each crisis in international affairs Italy aligned herself more positively with Germany. Major R.A.F. preparations were impeded, however, by "the desire of His Majesty's Government to do nothing which might impair the existing relations with that country" (Italy). The Middle East had now ceased to represent the main area of R.A.F. strength, because all endeavours were then being made to counter the German rather than the Italian threat. Nevertheless, although all actions had to be very circumspect, and although men, aircraft and equipment arrived tardily, every effort was made to bring into play the full value of existing resources, and an important improvement in the general situation became apparent with the construction of twelve new airfields under the terms of the Anglo-Egyptian Treaty of 1936.¹

Australian interest during this immediate pre-war period was increased by the appearance in the Middle East of men holding short-service commissions in the R.A.F. These, with their fellows on all squadrons, were set ever-higher standards of airmanship, navigation, bombing and gunnery. They undertook long flights into the desert familiarising themselves with conditions over notoriously featureless country and keeping an eye open for possible landing grounds. Few as they were they achieved some prominence. In September 1939, for example, Flight Lieutenant Fry² of No. 112 Squadron was selected to perform the trials on the first Hurricane fighter to arrive in the Middle East. During the spring of 1940 their numbers grew with the arrival of squadrons withdrawn from India and other remote areas; and before R.A.A.F. participation proper began in November 1940, 4 Australians commanded squadrons, 4 were flight commanders, 2 had won decorations for gallantry and 3 were dead. By June 1941 when the first products of the Empire Air Training Scheme were beginning their operational careers, four more of this little band were dead, one was a prisoner of war and another four had been decorated. The duties of these men spread over three continents in numerous campaigns of which not less than two were being fought at the same time during the first eighteen months of hostilities. This entailed a constant diversion of units towards consecutive centres of pressure and did involve some Australians in fighting of considerable variety although their contribution was naturally fragmentary.

When war actually came in September 1939, an uneasy calm existed in the Mediterranean because Italy's neutrality would obviously end as soon as she deemed the time ripe for profitable intervention. Thus, while the main focus of war was first on the Polish crisis, then on the apparent stalemate in western Europe, then on Scandinavia, and finally on the Low Countries and France, all that could be done in the Middle East was to plan joint action against eventual Italian aggression and to make administrative arrangements to implement these plans with whatever forces could

¹ Amiriya, El Hammam, Daba, Qasaba, Khatatba, Maaten Bagush, Ikingi Maryut, Burg el Arab, Fuka, Mersa Matruh, Bir Hooker and Sidi Barrani.

² F-Lt C. H. Fry, DFC, 40047 RAF, 267607; 112 Sqn RAF. Regular air force offr; of Newcastle, NSW; b. Newcastle, 29 Oct 1915.

be spared. For the Royal Air Force this meant in practice mainly an intensification of work on airfields in Egypt and Palestine, an attempt to overhaul supply and maintenance facilities and a new fluidity of control which came not only from delegation of operational responsibility but also entailed making individual squadrons as mobile as possible. However, although much training and a series of defence exercises were carried out, conservation of resources became a major consideration because of the prior needs of other areas, and in retrospect the transformation from peacetime to wartime readiness does not appear very rapid.

Certainly Sir Arthur Longmore, who took over control of Middle East air forces from Sir William Mitchell on 13th May, had sound reasons for uneasiness. His directive defined the primary role of his air forces as the defence of Egypt, the Suez Canal, and the communications route through the Red Sea. All Royal Air Force units stationed or operating in Egypt, the Sudan, Palestine and Transjordan, East Africa, Aden and Somaliland, Iraq and adjacent territories, Cyprus, Turkey, the Balkans, the Mediterranean Sea, the Red Sea and the Persian Gulf came under his control. This magnificent geographical responsibility was backed, however, by pitifully small means. Discounting the small Egyptian Air Force, whose degree of cooperation was unpredictable except that they might be expected to help with the fighter defence of Cairo, Longmore disposed in Egypt and Palestine only 40 Gladiators, 70 Blenheims, 24 Bombay and Valentia transports, 24 Lysanders and 10 Sunderlands. Farther afield in Kenya, the Sudan and Aden there were 85 Wellesleys and Blenheims and a few more Gladiators. In Kenya there were also three squadrons of the South African Air Force—one of Gladiators, one of Battles and one of Ju-86 aircraft. There were patently no modern fighters and no long-range bombers in the entire Middle East Command and even at that very moment (10th May) with the Germans breaking through the French line at Sedan, it was clear that early British reinforcements were unlikely and, conversely, that French air strength in Tunisia and Syria upon which depended joint action against Italy, might soon be called upon to redress the adverse balance in metropolitan France. There was, moreover, the possibility that either or both Greece and Turkey might become involved in the war, necessitating even greater dispersal of existing forces.

Against this scattered, obsolescent and difficult-to-reinforce British force, it was estimated the Italians could immediately dispose approximately twice the number of aircraft both in the Eastern Mediterranean and East African theatres, and that the former at least could be readily reinforced at will from Italy.³ However, Longmore felt confident that

³ The estimates made late in May 1940 and the actual strengths were:

				Libya and Dodecanese					
				Estimated strength		Actual strength			
Libya:									
Bombers	-	-	-	84	Savoia types	Bombers	-	-	157
					(Sm. 79, 81)	Fighters	-	-	101
				56	Ghibli	Miscellaneous	-	-	72
Fighters	-	-	-	144					
Miscellaneous	-	-	-						
Reece									
Support, etc	-	-	-	57					

what his forces lacked in quantity would, in any real prolonged test of strength, be compensated by the offensive spirit and more solid experience and training of his air and ground crews. Accordingly the outline plan for the defence of Egypt (revised on 7th June) showed no sign of pessimism. No. 202 (Bomber) Group at Maaten Bagush was to control four bomber, one fighter and one army-cooperation squadron for offensive action in the forward area, either independently or in concert with naval or ground forces. No. 252 (Fighter) Wing at Alexandria was to control all other fighters with the general role of destroying enemy aircraft attacking any objective in lower Egypt, with particular reference to the protection of Cairo, the Suez Canal and the fleet base at Alexandria. Headquarters R.A.F. Middle East at Cairo was to keep under its own direct operational control the flying-boats of No. 201 (Naval Cooperation) Group, the bomber-transport squadrons and reserve units.

As Allied resistance waned in France towards the end of May Italy's hostile intentions were no longer in doubt. Faced with apparently overwhelming enemy numbers, the R.A.F. decided that when Italy actually entered the war it would employ its small but well-trained forces promptly and offensively. General Wavell resolved to launch limited ground attacks to clear the enemy from the frontier posts and to dominate the country as far west as possible. Air action aimed at delaying for as long as possible Italian preparation for the invasion of Egypt. Thus low-flying attacks began against Italian bases both in Libya and East Africa punctually on 11th June and similar attacks continued throughout the month.⁴ The general result was to force the Italians into a defensive attitude and they made little attempt to exploit their theoretical superiority of numbers. The R.A.F. static-defence fighters had so little to do that they were soon thrown into the forward fighting. After the fall of France, however, the R.A.F. had to watch its resources very carefully, for, with the loss of the direct air reinforcement route over France and via Malta, short-range aircraft could arrive only by convoy around the Cape, until the projected trans-African route from Takoradi came into operation. Nevertheless, throughout July and August a consistent level of pressure against Italian forces was maintained in all areas. From Aden Squadron Leader Bowman⁵

Dodecanese:

Bombers	-	-	-	-	36
Fighters	-	-	-	-	12
Miscellaneous	-	-	-	-	36
					<hr/> 425

330

East Africa:

Bombers	-	-	-	-	150
Fighters	-	-	-	-	63
					<hr/> 213

325

(of which 142
were in reserve)

⁴ G. Santoro, *L'Aeronautica Italiana nella IIa Guerra Mondiale*, states that 18 aircraft were destroyed on Libyan airfields that day.

Dawn air attack against Tobruk on 12 Jun damaged the cruiser *San Giorgio* which remained an unmovable but by no means mute participant in future campaigns in the desert.

⁵ W Cdr A. McD. Bowman, DFC, 32138 RAF; comd 39 Sqn RAF 1939-41. Regular air force officer; of Deloraine and Launceston, Tas; b. Kinvarra Park, Tas, 18 Aug 1911. Killed in action 30 Nov 1941.

of No. 39 Squadron R.A.F. led many successful raids against Diredawa and other targets in Italian East Africa, while in the Western Desert, Australians on Blenheim squadrons, soon joined by the Wellingtons of No. 70, attacked enemy lines of communication between Derna and the Egyptian frontier, airfields at El Adem, Gazalá and El Gubbi, encampments at Bir el Gubi, and dumps at Bardia. The fighter squadrons brought forward to Sidi Barrani and Gerawla made offensive sweeps, protected returning bombers and escorted Lysanders on their tactical reconnaissances. Clashes with Italian aircraft were fewer than might have been expected but Fry, Flying Officer Strahan⁶ and Pilot Officer Duff⁷ of No. 112 and Squadron Leader Hickey⁸ of No. 80 on varying occasions all saw action against vastly superior enemy patrols. Over the Mediterranean a few individuals with the two Sunderland squadrons (Nos. 228 and 230) flew constantly to ensure no unheralded move by the Italian Fleet; and on 19th September Flight Lieutenant Whiteley⁹ arrived at Luqa (Malta) in charge of four Glenn Martin aircraft to watch ports in southern Italy. Early in November these aircraft, now known as No. 431 Flight, reported the presence in Taranto of an Italian battle fleet, and on the basis of their reconnaissance was planned the highly-successful torpedo strike by Fleet Air Arm units on 11th November.

There was cause for satisfaction that this moderate harassing offensive pinned the Italian air units to rear landing grounds from which they could mount only occasional raids. The air operations could not, however, as neither could naval sweeps nor the aggressive frontier ground patrols, redress the whole strategical situation consequent on the elimination of France and the freedom of Italy to concentrate all her force against Egypt. On 12th September Marshal Graziani set off eastward with elements of six Italian divisions. As General O'Connor's¹ rearguards, obeying orders to conserve strength for future more important battles, fell back on Matruh before this cautious promenade in strength, the Blenheim squadrons attacked the enemy columns, but after the halt at Sidi Barrani, they and the Wellingtons concentrated once more on targets in Libya. By October, Italian inefficiency, the opening of the Takoradi route, and the forceful R.A.F. tactics had given hopes of an even greater air offensive if only more supplies of aircraft and crews could be obtained. Then on 28th October Italy invaded Greece. Longmore on his own initiative immediately sent one squadron to Greece and within a month three and a half further squadrons were sent, and after 6th November

⁶ W Cdr P. E. C. Strahan, 36754 RAF, 253251. 112 Sqn RAF; Staff Offr Training HQ Western Area 1942-45; comd ADHQ Higgins, 1945. Regular air force offr; of Geelong, Vic; b. Moonee Ponds, Vic, 18 Nov 1915.

⁷ Sqn Ldr B. B. E. Duff, 40684 RAF; 112 Sqn RAF. Regular air force offr; b. Randwick, NSW, 2 Nov 1915.

⁸ Sqn Ldr W. J. Hickey, DFC, 32035 RAF; comd 80 Sqn RAF 1940. Regular air force offr; of Sydney; b. Sydney, 9 May 1907. Died of wounds 21 Dec 1940.

⁹ Gp Capt E. A. Whiteley, DFC, 37588 RAF, 22 Sqn RAF; comd 431 Flight RAF 1940-41, 168 Wing RAF 1944. Regular air force offr; of Sydney; b. Sydney, 30 Mar 1914.

¹ Gen Sir Richard O'Connor, GCB, DSO, MC. Comd XIII Corps 1940-41, VIII Corps 1944; GOC-in-C NW Army, India, 1945-46. Regular soldier; of Oxford, Eng; b. Kashmir, India, 21 Aug 1889.

the Wellingtons, although based in Egypt, devoted their whole attention to Greece. The resultant deficiencies in No. 202 Group were made good by drawing flights from squadrons at Aden, by re-equipping squadrons with more modern aircraft now becoming available, and by calling into immediate readiness the Gladiator flights of No. 3 Squadron R.A.A.F., which had arrived in Egypt late in August.

The original decision to send an army-cooperation squadron overseas with the Australian Imperial Force had been reversed on 28th November 1939 when the Federal Cabinet ruled that all R.A.A.F. resources must initially be employed in ensuring a sound basis for Empire Air Scheme schools in Australia. When on 28th February 1940 it was decided that "for national and training reasons" the 6th Division should have an Australian squadron, the Air Ministry, in London, was asked whether all the necessary aircraft and equipment could be supplied from R.A.F. sources, as only personnel were available in Australia. This proposal was enthusiastically accepted and arrangements made for all equipment not already available in the Middle East to be sent in a convoy during June so that the squadron could form early in August. The entry of Italy into the war threatened to dislocate these arrangements as the Admiralty decided not to send liners through the Red Sea, but these difficulties were eventually overcome. The officers and men of No. 3 Squadron, nearly all of them regulars, under the command of Squadron Leader McLachlan², sailed from Sydney in the *Orontes* on 15th July, trans-shipped to the *Dilwarra* at Bombay and arrived at Port Tewfik on 23rd August slightly ahead of their aircraft, which had also been delayed.

The squadron was placed immediately under the command of the Air Officer Commanding-in-Chief Middle East, and although it had been intended to attach it to I Australian Corps under the general operational control of General Wavell, the commander-in-chief of the land forces, such allocation of aircraft to specific army formations conflicted with the principle of tactical flexibility of air power and was resisted by the air force.³ In any case ideas about army cooperation were undergoing revision, for the Lysander, the standard aircraft designed to meet army needs in tactical, artillery and photographic reconnaissance, had proved itself unequal to the demands of modern warfare having neither the speed, armour, nor armament necessary to withstand fighter attack. Army needs, consequent on European campaigns, had meanwhile broadened to include not only reconnaissance, but protection against enemy air attacks, and

² Air Cmdre I. D. McLachlan, DFC, 55. Comd 3 Sqn 1940-41, RAF Stn Benina 1941, RAAF Stns Canberra and Laverton 1942, RAAF Wing New Guinea 1943, 81 Wing 1945. Regular air force off; of Melbourne; b. South Yarra, Vic, 23 Jul 1911.

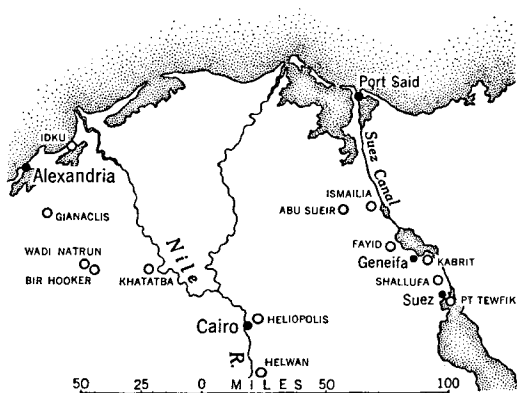
³ There seems to have been some misconception and lack of liaison in Australia. Air Cmdre McNamara in London was somewhat disconcerted on 9 Aug 1940 when he sighted a signal from Australian Army HQ to the Military Liaison Offr:

"Question arises whether No. 3 (A.C.) Squadron RAAF Middle East should be placed under GOC Australian Corps alternatives being GOC-in-Chief or AOC Middle East. Desire squadron be available cooperation AIF should it be employed operations. Consult War Office and advise."

McNamara immediately apprised Air Board of this unilateral approach and received instructions to intercede and to press on Air Ministry, Air Board's strong "opinion that No. 3 Squadron must come under command of AOC-in-C RAF Middle East who will make available for operations to Army as required. This principle acknowledged in combined operations manual and Army Field Service Regulations."

attacks on the enemy's army. Experience had shown that Hurricane aircraft, though not designed for the purpose, were capable of making just as effective reconnaissance flights as Lysanders, and also could meet some of the new needs.

It was therefore proposed to re-equip army-cooperation squadrons with fighter-type aircraft as soon as possible. Unfortunately current needs in England made it necessary to retain the Lysander in use and it was on borrowed machines of this type that the Australians began training at Ismailia on 1st September. Their own aircraft arrived early in September without propellers or air filters, but this discouragement was forgotten on 16th September when the squadron was ordered to Helwan to be reconstituted on a three-flight basis, two of Gladiator single-seater fighters and one of Lysanders. Four Gauntlet aircraft were also allocated which were to be detached with crews and a maintenance party to train in dive-bombing tactics with No. 208 Squadron R.A.F. No. 3 was thus to become a close-support rather than an army-cooperation squadron of the standard type, for, although the Lysander flight at Helwan went through the normal course of reconnaissance, the Gladiators concentrated on formation flying, aerobatics and combat tactics, while at Qasaba, the Gauntlet pilots sought to master the technique of dive bombing.



Airfields in the Nile Delta.

Early in November No. 3 moved up to Gerawla to commence operations, headquarters and the Gladiators arriving on 2nd November and the Gauntlets on the following day. The Lysander flight remained at Helwan, and both here and at Ikingi Maryut, where it was transferred on the 21st, acted primarily as a reinforcement pool, for not even in mid-December, when the operational flights could muster only one serviceable aircraft, was it deemed practicable to commit them to battle. The first ten days at Gerawla were spent peacefully in siting tents, digging shelters, and organising maintenance and supply systems. Tactical reconnaissances of enemy positions between Sofafi and Nibeiwa began on 13th November, and during the fourth of these on the 19th, No. 3 recorded its first combat. Flight Lieutenant Pelly,⁴ escorted by Squadron Leader

⁴ Gp Capt B. R. Pelly, OBE, 260226. 3 Sqn; comd 451 Sqn 1941, RAAF School Army Co-op 1942, RAAF Stn Canberra and 73 Wing 1943, 71 Wing 1943-44; Dir Tactical and Opnl Reqmnts RAAF HQ 1945. MLA (NSW) since 1950. Grazier; of Bowral, NSW; b. Buckley, Flintshire, Eng, 31 May 1907.

Heath,⁵ Flying Officers Rawlinson⁶ and Boyd,⁷ was reconnoitring seven miles east of Rabia when, about 2 p.m., eighteen CR-42 aircraft appeared. The enemy fighters broke formation, nine attacking Pelly and the others his escort, their primary object seeming to be to isolate each aircraft in turn and destroy it by sheer weight of numbers. This they almost succeeded in doing to Pelly, who had to withstand nine distinct attacks, but, although the engagement lasted twenty-five minutes, and Heath was shot down and killed, the Gladiators had much the better of the fight. Pelly reported one enemy aircraft destroyed and another damaged; Boyd claimed to have seen four of the attackers spin out of control; and Rawlinson also shot down one. Army units found three crashed enemy aircraft and as the battle began beyond the enemy lines it is possible that all six were actually destroyed.⁸ The rest of the month passed quietly, the main activity being an exercise with Western Desert Force in which mock dive-bombing attacks were made. From 28th November one Gladiator was maintained daily at standby notice and two at five-minute readiness to act as a fighter patrol when required, but they were never ordered into the air. Only one other operation came before the opening of the British offensive, when two Gladiators formed part of the escort for an aircraft from No. 208 Squadron R.A.F. which photographed Italian positions.

For five months no large-scale fighting had taken place in the Western Desert. The British rearguard had fallen back before the Italian advance to Sidi Barrani, but, as week after week passed and the Italians showed no signs of resuming their advance but remained behind a somewhat inadequate defensive screen, Wavell examined the possibility of himself attacking. The British supply position which earlier had caused concern was now much easier. Wavell also had in mind that a severe check to the Italians in the Western Desert might be of material and moral assistance to the Greeks and he therefore authorised a limited attack, originally intended to cover only five days' operations, to take place at the end of November.

Two features in particular of Wavell's plan made air support indispensable. Firstly, although there were thought to be six or seven Italian divisions in Egypt, Wavell, owing to lack of adequate transport, could employ only two divisions during an initial assault. Secondly, he had to move these divisions forward seventy miles over the desert before the engagement (which he planned to open on 9th December) and this entailed secret advances during the previous two nights, with the force spending one day in the open desert. Although every effort at concealment and

⁵ Sqn Ldr P. R. Heath, 87; 3 Sqn. Regular air force offr; of Muswellbrook, NSW; b. 27 Jan 1914. Killed in action 19 Nov 1940.

⁶ Gp Capt A. C. Rawlinson, DFC, 386. Comd 3 Sqn 1941, 79 Sqn 1943, 78 Wing 1945. Regular air force offr; of Ivanhoe, Vic; b. Fremantle, WA, 31 Jul 1918.

⁷ Sqn Ldr A. H. Boyd, 561. 3, 76, 84 and 75 Sqns; comd 101 Fighter Control Unit 1944; 67 Sqn. Regular air force offr; of Delungra, NSW; b. Quirindi, NSW, 17 Mar 1916.

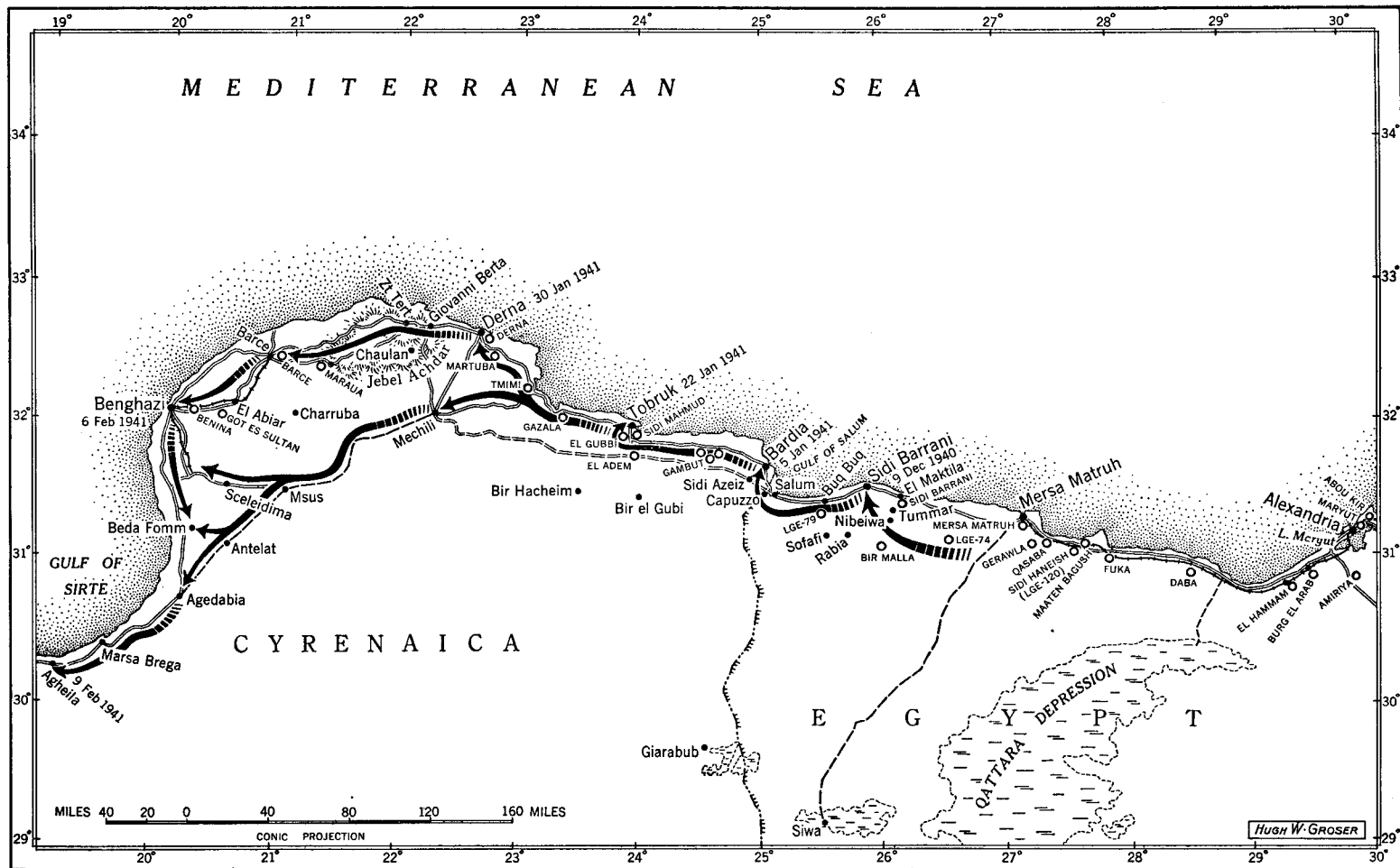
⁸ 202 Gp credited the sqn with 6 enemy aircraft, but as in practically all instances of air fighting it is extremely difficult to reconcile claims with official enemy records of missing aircraft.

dispersal was to be made, the need for adequate air cover in case of discovery was paramount. The dispatch of four squadrons to Greece had earlier prejudiced the plan for an offensive in the Western Desert, but by denuding less-active theatres in Middle East Command and by the arrival of one Hurricane and two complete Wellington squadrons from the United Kingdom, the equivalent of eleven squadrons was finally gathered in Egypt. This small force of three fighter, two army-cooperation, three medium-bomber and three heavy-bomber squadrons had to oppose in its own element (it was estimated) at least 250 enemy bombers and 250 fighters; and whereas the Italians could hope for speedy reinforcement, No. 202 Group, which controlled all R.A.F. operations west of the Delta, except those of the army-cooperation squadrons,⁹ had to rely only on its own immediate reserves. The preceding five months, however, had already shown that the numerically inferior R.A.F. by determined aggression could pin down and harass the Italian Air Force. Furthermore, as initially it was not thought that the operation would last more than a week, the R.A.F. hoped to maintain a maximum effort throughout the battle.

Air preparations began early in December with Wellington raids from Malta and Egypt on airfields near Tripoli and Benghazi, followed by light-bomber raids on enemy advanced landing grounds. As 9th December drew near Hurricane fighters strafed lines of communication immediately to the rear of the Italian positions near Sidi Barrani, and the whole chain of enemy defences was reconnoitred by Blenheims, Lysanders and Hurricanes. Western Desert Force completed the first stage of its approach march during the night of 7th December and lay dispersed and camouflaged a mere thirty miles from the Italian encampments. With the resources available it was impossible to maintain a constant air cover and accordingly as enemy fighters usually patrolled the front area between 7 a.m. and 9 a.m. and again between 1 p.m. and 3 p.m. when their working parties and front-line troops were most active, it was decided to protect the Western Desert Force by two offensive patrols of maximum strength at these times. All available aircraft from the three regular fighter squadrons and from No. 3 were employed on 8th December, the Gladiators flying in sections stepped up at intervals of 2,000 feet, with the Hurricane sections above. By this means action could be taken immediately against any enemy encountered from 1,000 to 20,000 feet. This protection proved adequate for no Italian aircraft ventured near the area. That night the undiscovered army resumed its advance, while heavy bombers struck at Benina airfield, and British naval units aided by Blenheim aircraft bombarded Sidi Barrani and El Maktila.

At dawn on 9th December, the 7th Armoured Division drove a wedge into the Italian line north of Sofafi while the 4th Indian Division swung northwards overrunning the enemy central encampments. By the following afternoon armoured units were astride the coast road to the west,

⁹ These were controlled directly by O'Connor through a senior air liaison officer at Western Desert HQ.



First Libyan Campaign.

Sidi Barrani was isolated, and an attack carried the village by nightfall. The 11th December saw all Italian forces in full flight.

These operations had the greatest possible air support, some 400 bombing sorties being flown against Bardia, forward landing grounds and lines of communication. Until 11th December the fighter squadrons and one flight of No. 3 flew maximum strength offensive patrols three times daily, while smaller patrols were mounted as required. The Italian Air Force, despite its superior numbers,¹ proved almost completely ineffective and made no attempt at strategic bombing or to attack R.A.F. landing grounds. The Italians flew both bombers and fighters almost exclusively over the battlefield with the result that not only were the bombers severely mauled by Hurricanes, but the fighters were rarely in a position to oppose R.A.F. bombing attacks which were progressively destroying the bases, organisation and maintenance facilities on which enemy flying depended.

No. 3's Gladiator flights were retained under the control of No. 202 Group until the morning of 9th December. After the first patrol that morning one of the flights flew to Landing Ground Emergency 74 for army-cooperation duties proper but the other flight remained at Gerawla engaged in the fighter sweeps until 13th December when the existing favourable air position warranted its transfer also to LGE-74.

Fifty-one Gladiator sorties, all over the Sofafi-Sidi Barrani area, were flown from Gerawla but no enemy aircraft was encountered. The other flight almost immediately after reaching LGE-74, had flown two patrols over troops south of Sidi Barrani on 9th December, while the Gauntlets also began operations that day with five dive-bombing attacks on enemy vehicles on the escarpment north-west of Sofafi. The following day was eventful, four Italian aircraft being claimed as destroyed without loss over the battlefield. During an early-morning patrol Flight Lieutenant Gaden² shot down an RO-37 while four Gladiators sent to investigate an army report of enemy aircraft over Tummar found twelve CR-42 fighters engaged in strafing troops. The enemy aircraft scattered immediately and making use of their superior speed tried to escape, but three were destroyed by McLachlan, and Flight Lieutenants Steege³ and Gatward.⁴

With the Italian army in full retreat, there were opportunities hoped for but not expected when the original five days' limited advance was ordered. O'Connor decided to advance as fast and as far as possible.

On 11th December No. 3 was ordered to bomb the enemy forces retiring along the Sofafi escarpment and to cover our own units as they advanced. Three times on 11th and 12th December the Gauntlets bombed

¹ Longmore's dispatch quotes the contemporary estimate of 250 bombers and 250 fighters in Libya. Subsequent analysis reveals that only 140 bombers and 190 fighters were available, some based as far distant as Castel Benito near Tripoli.

² F-Lt C. B. Gaden, 289; 3 Sqn. Regular air force offr; of Windsor, Vic; b. Windsor, 12 May 1916. Killed in action 13 Dec 1940.

³ Gp Capt G. H. Steege, DSO, DFC, 213. 11 and 3 Sqn; comd 450 Sqn 1941-42, 73 and 81 Wings 1943-44; SASO HQ Eastern Area 1945; comd 77 Sqn Korea 1951. Regular air force offr; of North Sydney; b. Chatswood, NSW, 31 Oct 1917.

⁴ F-Lt A. A. Gatward, 272; 3 Sqn. Regular air force offr; of Mittagong, NSW; b. Sydney, 21 Apr 1917. Killed in action 19 Feb 1941.

the Sofafi force which had been sealed off from the battle by the thrust of the 7th Armoured Division. The Gauntlets were then withdrawn as the efforts needed to service these obsolete aircraft were not justified by the results they achieved. The Gladiators on the other hand continued to operate regularly over the forward army units as they approached the frontier. Most patrols were uneventful but shortly after noon on the 12th, five Gladiators intercepted a formation of seventeen CR-42's about six miles north-west of Sofafi. Six or seven of the enemy remained to fight while the others climbed, circled once and flew away. After a short engagement the Australians again had a bloodless victory, three CR-42's being destroyed. The Gladiators, though invariably outnumbered, had performed with considerable success since the opening of the battle, but the next day was one of disaster. Six Gladiators on an early-morning patrol discovered five SM-79 bombers attacking our troops near Salum. One Savoia was shot down, a second probably destroyed and the rest dispersed, but before the Gladiators could re-form, the enemy fighter escort of eight CR-42's were upon them. A confused fight followed in which two Italians were shot down, but the Australians suffered heavy losses. Gaden crashed and was killed; Flying Officers Arthur⁵ and Winten⁶ were obliged to bale out; Boyd and Gatward were forced down although the damage to Boyd's aircraft was quickly repaired and he returned to base with Gatward as passenger. This engagement thus cost the squadron one pilot, four aircraft destroyed and two damaged, and as one of the Gladiators transferring from Gerawla that day also crashed on landing, the position became critical. On the following day a single Australian Gladiator flew two sorties; the squadron temporarily ceased operations on 15th December. By this time the remnants of the Italian army which had invaded Egypt had withdrawn into the Bardia fortress, and soon the 7th Armoured Division had cut the road leading west to Tobruk.

Although, in mid-December, there was comparatively little fighting, the provision of adequate air protection was becoming extremely difficult. The Australians had been ordered forward to Bir Malla on 13th December, for the express purpose of covering army units leading the advance, but this task was obviously now beyond its powers. By 14th December O'Connor, commanding in the Western Desert, was requesting better fighter protection, but little could be done until the 17th when, with four repaired machines and another four drawn from the almost-exhausted stocks of Gladiators held in the Middle East, No. 3 began limited operations once more. Thirty-nine sorties, all on offensive patrols over troops manoeuvring between Fort Capuzzo and Bardia, were flown between this date and 23rd December, and this modest scale of effort, due largely to intervening bad weather, allowed serviceability to be built up for the forthcoming assault on Bardia. As the 6th Australian Division

⁵ Gp Capt W. S. Arthur, DSO, DFC, 565. 3 Sqn; comd 75 Sqn 1943, 2 OTU 1944, 81 Wing 1944-45, 78 Wing 1945. Student; of Yelarbon, Qld; b. Sydney, 7 Dec 1919.

⁶ Sqn Ldr L. D'A. Winten, 270526. 3 and 75 Sqns. Commercial pilot; of Charleville, Qld; b. Brisbane, Qld, 13 May 1913.

relieved the 4th Indian Division⁷ after the Battle of Sidi Barrani, it had been decided as a matter of policy to maintain No. 3 Squadron at full strength in preference to other Gladiator squadrons, although its employment was not to be tied to purely Australian needs.

Slowly at first, and with great difficulty, Western Desert Force built up its resources for a continuation of its advance. The railway ran no farther than Matruh, and what transport there was had then to use a single road across the desert. The capture of Salum harbour eased the situation, and by the end of December supplies were mounting and the chosen assault units were moving into position. Until 22nd December air attack had chiefly been directed against stores and dumps in Bardia,⁸ but after that date the R.A.F. bombers concentrated on enemy landing grounds at Tobruk, Derna and Benina, where unusually large reinforcements of aircraft were reported. As a result Italian air activity increased very little; bombers were still directed mainly against troops though with little effect, while Italian fighters, which had every chance to take advantage of the existing lack of British fighters, contented themselves with escorting bombers and maintaining standing patrols. This resulted in few interceptions and lowered still further the already poor serviceability rate. This lack of aggression permitted No. 208 Army-Cooperation Squadron to fly photographic and artillery reconnaissances over Bardia with confidence. Even Lysanders escorted by Gladiators of No. 3 were employed on these duties, both squadrons having moved forward on 23rd December to a landing ground six miles south-west of Salum. In all, before the land attack on Bardia commenced on 3rd January 1941, the Australians flew sixty-nine escort sorties for the Lysanders and nineteen on offensive patrols over the frontier area "with the pious hope" that they might be "in the right place at the right time"⁹ to engage the CR-42's which occasionally strafed our armoured car units engaged in reconnaissance. The only combat recorded during this preparatory period occurred on 26th December when eight Gladiators waiting to escort a Lysander to Bardia sighted two flights of five Savoia 79 bombers each closely escorted by six CR-42's with a further eighteen CR-42's as top cover, over the Gulf of Salum. As the Lysander was some time overdue, the Gladiators intercepted the enemy formation, two engaging the bombers and the remainder attacking the top fighters. The bombers promptly headed westwards, but two CR-42's were observed to fall in the sea, and five (one of which may have been destroyed) were damaged. The Australians sustained only minor damage to three Gladiators.

⁷ 4 Indian Div had been promised to reinforce Gen Platt in the Sudan after the 5-day offensive. This transfer had to be made even though the aim of COMPASS (the code name of the operation) had meanwhile increased.

⁸ This air assault together with naval bombardment was valuable for its material results, but it was also thought that under the shock of the previous rout the Bardia garrison might decide not to defend the town and retire instead to Tobruk. British intelligence greatly underestimated Italian strength at Bardia, and by 19 Dec it was obvious that the Italians intended to stand and fight at Bardia.

⁹ Gp Capt L. O. Brown, "Report on Army Cooperation in Western Desert and Libya", Sec 30.

As at Sidi Barrani, land operations during the assault on Bardia went practically according to plan.¹ At dawn on 3rd January the perimeter defences were breached, Australian infantry with support from tanks fanned out within the fortress and by late afternoon of the 4th the battle was virtually over, although resistance in some sectors was not overcome until the following day. The support given by the R.A.F. was provided generally not at Bardia itself but farther west. Bombers attacked every airfield east of Derna to reduce the likelihood of Italian air intervention, while fighters strafed the Tobruk-Bardia road, gave protective cover for the 7th Armoured Division, and flew offensive patrols to prevent enemy aircraft reaching the battle area. These measures proved completely successful, enemy air opposition being almost negligible until 5th January when the battle was over. No. 3 was retained to provide cover for the attacking troops, but, although almost continuously in the air, seventy-seven sorties being flown in the three days, its aircraft were not once challenged by enemy fighters. On two occasions Italian aircraft were seen in the distance but no interception could be made.

Even before Bardia fell Wavell had decided to attack Tobruk, so the 7th Armoured Division was once more sent racing westwards. Mr Churchill had shown intense enthusiasm at the initial success at Sidi Barrani and on 26th December the Commanders-in-Chief ruled that operations in Libya were to have priority over all others, at least as far as the capture of Tobruk, whose port facilities were essential to ensure logistic support for consolidating the territory already won. By 6th January the fortress of Tobruk was isolated and the following day the 19th Australian Brigade reached the perimeter defences on the east side of the port. A fortnight was to pass before an attack could be launched against Tobruk, for again it was necessary to build up supplies for both army and R.A.F. Increased use was made of Salum, but inadequate numbers of vehicles had still to bring munitions, food and general supplies up to the front line. Some air squadrons were now as much as 150 miles behind the army, and during the necessary reorganisation could operate only infrequently. However, one important result of the initial drive of the 7th Armoured Division was to force the Italians to abandon in haste all airfields east of the Derna-Martuba group, and, while waiting for their own supplies, British squadrons which had moved forward to these landing grounds made some use of enemy stores. Bombing attacks were soon resumed on Tobruk, Derna and Benghazi and small as the R.A.F. effort was it exceeded by a considerable margin that of the Italians who made only sporadic bombing attacks with single aircraft on Salum, Bardia and forward troops. Enemy fighter activity was practically non-existent, and the *Regia Aeronautica* was almost a spent force.² Since the campaign opened on 8th December it had lost 154 aircraft in battle, while on every landing ground now

¹ The ground operations, only briefly referred to in this chapter, are described in detail in G. Long, *To Benghazi* (in the army series of this history).

² According to Marshal Graziani the Italians on 5 Jan 1941 had only 119 aircraft available, half of which were fighters.

taken over by the advancing army and air force, aircraft in all states of airworthiness were found abandoned in large numbers.

For No. 3 the period following the fall of Bardia was one of reorganisation and movement. By 8th January the Gladiator flights had become established on a landing field four miles north of Gambut, while the Lysander flight, in accordance with a decision taken after the battle of Sidi Barrani, transferred from Ikingi Maryut to Gerawla where it re-equipped with Gladiators. From there it moved with squadron headquarters, workshops and equipment sections first to Salum and finally, on the 11th, to Gambut. Thus for the first time the squadron was a compact body, equipped with one type of aircraft and at full strength. The only detached Australians were now the gunners, wireless operators and photographers rendered superfluous by the progressive conversion of flights to single-seater aircraft. At the request of Headquarters R.A.F. in Middle East, these men, together with ground tradesmen associated with them, had been attached to R.A.F. squadrons which were under strength, in particular the two army-cooperation squadrons—No. 208, which was closely associated with No. 3, and No. 6 at Ramleh (Palestine) which sent one flight in rotation to operate with No. 208.

Operationally this period was rather disappointing. Until 11th January much time was spent in settling in at Gambut, and thereafter the weather remained consistently bad for a week. Only sixty-six sorties were flown, mostly over troops moving into assault positions before Tobruk, and on one occasion to protect the 11th Hussars which were performing a special reconnaissance between Mechili and Bir Hacheim. Apart from their effect on air activity the prevalent dust storms were also partly responsible for the death of one and capture of another member of the squadron. On 14th January Corporal Jarvis,³ a wireless operator then attached to No. 208 Squadron, set out with Leading Aircraftman Parr⁴ to check wireless equipment in use with artillery units near Tobruk. Even under normal circumstances accurate navigation in the featureless desert was difficult, but during a dust storm Jarvis and Parr drove their tender almost on to the guns of the Tobruk defences, Jarvis being killed and Parr captured, although Parr was released a few days later when British forces entered the town.⁵

The land battle for Tobruk which opened on 21st January differed little in essentials from that at Bardia. Once more objectives were carried as planned and on the morning of the 22nd the port was captured. Air operations, however, were modified to give greater direct assistance. Heavy bombing attacks again preceded the assault but Blenheims continued to bomb military objectives within the defence perimeter throughout the 21st instead of attacking the Italian air bases. Two Hurricane

³ Cpl V. J. Jarvis, 300047; 3 Sqn. Radio mechanic; of Griffith, NSW; b. Perth, WA, 8 Jul 1912. Killed in action 14 Jan 1941.

⁴ F-Lt J. G. Parr, 255713; 205847. 3 Sqn; atchd Dir of Communication Developmt RAF. Electrical engineer; of Canterbury, Vic; b. Wyalong, NSW, 8 Aug 1908.

⁵ Parr was the only British prisoner in Tobruk. On the morning of 22 Jan he took charge of the gendarmerie barracks where he was being held and when the troops entered the town he was virtually in control of the local police.

squadrons, assisted by No. 3's Gladiators, maintained fighter patrols over and to the west of the battlefield. These measures proved adequate, for very few enemy aircraft appeared and only one combat was reported. The Australians were not engaged and flew twenty uneventful sorties.

Events moved rapidly after the fall of Tobruk. What remained of the Italian army was now divided into two forces—one across the coast road east of Derna, and the other at Mechili. Further orders had now been received from the Chiefs of Staff that the capture of Benghazi was of the greatest importance. This decision was made possible because the Greeks had temporarily turned down an offer of British army units which could only have been provided at the expense of the Libyan offensive. Accordingly Western Desert Force, its supply difficulties considerably eased by the capture of a good harbour, and using many captured vehicles and much captured petrol, pushed on rapidly, making contact with both enemy forces by 23rd January. It was very difficult to provide air support for these operations, for bomber squadrons were not at this date fully mobile, and even fighter squadrons had difficulty in keeping up with the army's advance. No. 3 was ordered on 21st January to move to Tmimi as soon as possible, but although an advance party left Gambut that evening, the squadron as a whole did not reach Tmimi until 24th January by which time the Gladiators were needed at Martuba. On this occasion the movement was effected in less than twenty-four hours. The advance was now approaching the main Italian base airfields, and although all R.A.F. fighter squadrons were showing the effects of sustained operations under desert conditions, they met surprisingly little enemy opposition.⁶ No. 3 flew only forty-four patrols up to 28th January, cover being provided as required either over the 19th Australian Brigade near Derna or the armoured division in the Mechili sector. One air engagement resulted on 25th January, when five Gladiators patrolling at 2,000 feet, eight miles south-east of Mechili, were attacked by an equal number of G-50 fighters which dived from 10,000 feet. The advantage in height proved decisive. Four Australians escaped in damaged aircraft but Flying Officer Campbell⁷ was shot down. On 29th January No. 3 began re-arming with Hurricane aircraft and were called on very infrequently for operations during the final stages of the conquest of Cyrenaica. The Italians had withdrawn from Mechili on the night 26th-27th January thereby uncovering not only the flank of the Derna positions but also the direct route south of the Jebel Achdar to the Gulf of Sirte. Derna was occupied by 30th January and during the next few days aircraft reported a general withdrawal westwards. The Australians flew one reconnaissance to locate an armoured brigade and later to escort a Lysander covering the area Giovanni Berta-Zt Tert-Chaulan. The complete disappearance of enemy air opposition suggested that even the Benghazi airfields were being

⁶ The numbers of Italian aircraft serviceable in Libya when Tobruk fell are now estimated at only 45 bombers and 35 fighters.

⁷ F-O J. C. Campbell, 634; 3 Sqn. Journalist; of Charleville, Qld; b. Charters Towers, Qld, 22 Nov 1918. Killed in action 25 Jan 1941.

evacuated, and events moved quickly to a climax. While bombers attacked railway terminals at Barce and Benghazi, and fighters strafed road convoys, the 6th Australian Division pushed along the coast road while the 7th Armoured Division, carrying only two days' supplies, disappeared into the desert heading from Mechili towards the coast south of Benghazi. On the evening of 5th February it emerged near Beda Fomm a few hours ahead of the retreating Italian army, the remnants of which surrendered on 7th February after a long fight. Benghazi having been occupied by the 6th Australian Division the previous day the conquest of Cyrenaica was complete.

In its own element the handful of R.A.F. squadrons working under No. 202 Group had achieved a degree of superiority over the Italian Air Force comparable to that attained by Western Desert Force (now named XIII Corps) over the Italian *Tenth Army*. Unquestionably the task was made easier by Italian inefficiency and the speed with which the army overran enemy airfields, but the results achieved especially by the policy of attacking enemy air bases and of maintaining offensive tactics only in the air were exceptional, gradually eliminating the Italian Air Force as a factor in the land battle, until at Beda Fomm, despite the inability of the R.A.F. to be present, enemy aircraft made no attempt to intervene. To No. 3 as to every other squadron taking part belongs a share of the credit in these achievements. With No. 208 it formed part of a small advance-guard pushing steadily westwards and meeting at first hand all the problems of mobility and supply associated with the advance. At first a close-support unit it changed gradually into a fighter squadron, but remained at the call of Western Desert Force throughout and recorded 546 sorties in all. Its Gladiator aircraft, though old and lacking the speed and climbing ability of its normal opponent, the Italian CR-42, were manoeuvrable, and in the hands of determined pilots were able to engage on approximately equal terms. During the five conclusive engagements it fought during the campaign in Cyrenaica, No. 3 claimed the destruction of twelve enemy aircraft for the loss of five Gladiators and two pilots killed. Such results, valuable in themselves, exemplified how the constant offensive pressure exerted by the R.A.F., drove the Italians to adopt purely defensive patrols, wasted away their striking power, and finally prevented them from putting their aircraft into the air at all. No. 3, like No. 10 in England, had an advantage over other squadrons at this time in that it was an almost undiluted formation of pilots with considerable flying experience. They and the ground crews also profited from the "frontier mind" and ability to adapt themselves instinctively to new situations which compensated for the lack of precise previous knowledge of Libyan conditions or the technical aspects of desert warfare.

Beyond Beda Fomm the coast road ran south to Agedabia then west past the marshes of Agheila. It was unencumbered now save for a few Italian units retreating westward at full speed. Although the road to Tripoli was open, it could not be taken immediately, for recent happenings

in the Balkans had convinced the British Government that it must send all available forces to Greece. Germany's cynical indifference to her ally's early setbacks in the Graeco-Italian war had given way early in 1941 to a more positive policy of seeking hegemony in the Balkans. In January Wavell had already been instructed to offer Greece the assistance of a number of specialised army units; now orders came to send to Greece the largest possible land and air forces. Accordingly the force in Cyrenaica was to be reduced to one armoured brigade and one infantry division, both very short of equipment and only partly trained, while only four squadrons of aircraft were retained in Cyrenaica.

On 10th February No. 3 had moved forward to Benina to assume responsibility for the air defence of Benghazi, while No. 73 Squadron R.A.F. took up similar duties at Tobruk. From the outset the task was difficult for the existing anti-aircraft defences were totally inadequate, and could not be reinforced as most of the few available guns were earmarked for Greece. At this time German aircraft from Sicily and Tripolitania⁸ began to raid Benghazi and to sow mines in the harbour. Interception was not easy, for early-warning facilities had yet to be organised, and, as raids were frequently mounted before dawn or just after dusk, day fighters were severely handicapped. Thus, although the Australians were airborne ninety-nine times during the first fortnight, at Benina only one success was gained; when on the 15th Flying Officer Saunders⁹ chased a Junkers 88 several miles out to sea and finally destroyed it, the German crew being rescued by a mine-sweeper. Despite the temporary attachment of a flight of No. 73 Squadron R.A.F. to assist the Australians, by the third week in February the navy declined to send further supply ships to Benghazi until the air defences had improved. All supplies for forward army units now had to come overland from Tobruk, and ultimately lack of transport made it necessary progressively to reduce the strength of the force in western Cyrenaica.

Enemy air attacks were soon extended to Tobruk and to British troops forward in the Agedabia area, and by 17th February No. 3 was being called on for some assistance. During the following three days twenty-five sorties were flown in six patrols over the forward area and on two occasions enemy aircraft were encountered. The first engagement was on 18th February when three Hurricanes attacked a force of approximately twelve Junkers 87 near Marsa Brega. The Stukas¹ dived quickly from 1,000 feet to fifty feet and scattered but not before one had been shot down and eight damaged. The following morning three Hurricanes found nine Ju-87's again bombing British troops and in an immediate attack

⁸ The fall of Agheila compelled the Germans to switch part of the forces then attacking Malta, to bolster up the Italians in North Africa. From this time onward the German air commitment in Libya became prominent although in the ensuing 6 months it did not exceed 150-200 aircraft, mainly dive bombers and fighters. One wing of dive bombers was withdrawn on 26 Mar from El Machina to Rumania for the campaign in Greece.

⁹ F-Lt J. H. W. Saunders, 471; 3 Sqn. Regular air force off; of Cottesloe, WA; b. Richmond, Surrey, Eng, 8 Apr 1920. Killed in action 22 Oct 1941.

¹ The Ju-87 dive bomber has become so firmly fixed in popular literature as the Stuka, that it is so called hereunder. The Stuka (from *Sturzkampflieger*) was properly a dive attack-bomber and applied to many aircraft besides the Ju-87.

Flight Lieutenant Perrin² shot one down. Perrin and Gatward were then attacked by several Messerschmitt 110's which appeared without warning, Gatward being shot down and killed. At this point Perrin, finding himself alone, attacked and set on fire the nearest enemy machine, but while attacking a second Messerschmitt, his own aircraft was hit in the petrol tank. He continued attacking until his ammunition was expended, and then, too low to bale out, he crash-landed in flames. As he ran from the aircraft one of the enemy continued to fire at him but, escaping serious wounds, he was later picked up by a British patrol. The third pilot had lost contact after the original attack on the Stukas. Unable to find his comrades, he had landed at Agedabia.

On 25th February control of the four squadrons west of the Egyptian frontier passed to Headquarters R.A.F. Cyrenaica. Enemy air activity, predominantly German, continued to increase and Australian pilots spent more and more of their effort on meeting army needs in the forward sectors. Continued air attacks on Benghazi made defence of the airfield at Benina as important as defence of the harbour, for three types of British aircraft were now regularly employing Benina as an advanced base. These were:

- (1) Reinforcement aircraft flown from the United Kingdom.
- (2) Blenheims of No. 55 Squadron R.A.F. engaged in strategic reconnaissance of Tripolitania.
- (3) Wellingtons from Egypt detailed to bomb Tripolitanian harbours and airfields.

Base facilities for the latter two types of aircraft steadily increased with the knowledge that enemy army reinforcements, including Germans, were arriving in strength at Tripoli.³ To provide night-flying facilities, refuel and service the aircraft, and care for the crews, R.A.F. Station Benina had been created on 13th February when McLachlan was promoted wing commander as its first commanding officer, Squadron Leader Jeffrey⁴ assuming command of No. 3. Few additional personnel arrived, however, and station headquarters was simply an extension of the squadron, Australian maintenance crews meeting the new requirements in addition to their normal duties throughout this period. Of scarcely less concern was the shortage of pilots, for, with six or nine aircraft detached daily to Agedabia, and constant "standby" and "readiness" states at Benina a strength of seventeen pilots, including McLachlan was barely adequate. The Air Board was requested on 7th March by Headquarters R.A.F. Middle East to maintain the squadron at the established figure (twenty-

² W Cdr J. R. Perrin, DFC, 380. 3 Sqn; comd 5 and 24 Sqs 1942, 76 Sqn 1943; Dep Dir Ops RAAF HQ 1943-44; SASO RAAF Overseas HQ 1944-46. Regular air force offr; of Melbourne; b. Melbourne, 9 Oct 1916.

³ The Italian General Staff dispatched the *Ariete Armd* and the *Trento Motorised Divs* while Hitler ordered that the 5 *Light Div* to be followed by 15 *Panzer Div* to be known as the *Africa Corps* should also go to Tripolitania to stiffen Italian resistance. Meanwhile, largely as a result of the attacks made by *Fliegerkorps X* in Sicily against Malta, neither British air nor naval measures could prevent enemy movements from Italian ports to Tripoli. Of 220,000 tons of cargo destined for N Africa during Feb and Mar 200,000 tons arrived safely.

⁴ Gp Capt P. Jeffrey, DSO, DFC, 145. Comd 3 Sqn 1940-41; W Ldr 234 Wing RAF 1941; comd RAAF Stn Bankstown, 75 and 76 Sqs 1942, 2 OTU 1942-43, 1 Wing 1943-44, 2 OTU 1944-45. Regular air force offr; of Sydney; b. Tenterfield, NSW, 6 July 1913.

one) plus five, with a reserve of ten pilots, but to meet immediate needs, the same expedient adopted by No. 10 the previous June—acceptance of non-Australian pilots on attachment—was inevitable. Three pilots arrived from No. 73 on 22nd February, three more on 5th March and two South African pilots on 26th March. Thereafter Australian pilots trained under the Empire Training Scheme were posted to No. 3 but all these expedients were strongly denounced by Air Board which desired to retain its character as a complete squadron of the permanent R.A.A.F. Yet another administrative difficulty arose because three officers and thirty-four airmen, nominally members of No. 3, were still attached to R.A.F. squadrons and this led to the suggestion that an Australian liaison officer be appointed to Headquarters R.A.F. Middle East.

Fighter operations were notable rather for unremitting effort than spectacular achievements. Between 25th February and the end of March the Australians flew 322 sorties, 189 from Benina and 133 from Agedabia, only intercepting enemy aircraft once. This was on 28th February, when, at 9.15 a.m. Squadron Leader Campbell⁵ shot down a Ju-88 three miles south of Benghazi. Owing to poor anti-aircraft defences it was impracticable to keep aircraft permanently at Agedabia and the Germans quickly learnt to operate before the Hurricanes reached the forward area each morning or after they had left for Benina each evening. Moreover at Benghazi daylight raids by single enemy bombers using the seaward approach, and heavier night raids, were almost impossible to prevent without an adequate warning system. The value of the squadron's work at this period is thus difficult to assess, but by its mere presence when the Germans were anxious to avoid combat it did limit enemy daylight operations. It is probable that the sight of friendly aircraft over their heads helped to maintain the spirits of the forward troops, who were well aware of their own weakness and the growing strength of the enemy.

Towards the middle of March, despite R.A.F. bombing attacks on Tripoli and the airfields fringing the Gulf of Sirte, there was a steady movement of enemy forces towards Agheila. The air forces available in Cyrenaica could do little to frustrate the impending attack as Greece and East Africa had absorbed much of their strength and reinforcements were arriving tardily.⁶ On 22nd March all R.A.F. squadrons were warned to be ready to move at short notice and to prepare demolition plans. They would be required to operate throughout a withdrawal under the following general plan⁷:

- (1) Army cooperation squadron (No. 6 R.A.F.) to maintain tactical reconnaissance.
- (2) Bomber squadron (No. 55) to maintain strategical reconnaissance and carry out bombing attacks in direct and close support of the army.

⁵ Sqn Ldr D. Campbell, 134; 3 Sqn. Regular air force offr; of Auburn, NSW; b. Leeds, Eng, 30 Sep 1915. Killed in action 5 Apr 1941.

⁶ Between 1 Jan and 31 Mar, 166 aircraft arrived in the Middle East. The loss from all causes was 184. (Longmore's dispatch, *Air Operations in the Middle East from January 1st 1941*, para 19.)

⁷ Operational Instruction No. 4 issued by AOC Cyrenaica.

- (3) Fighter squadrons (No. 73 and No. 3 R.A.A.F.) to protect Tobruk port and the forward troops, especially armoured units.

Three enemy divisions advanced from Agheila on 31st March driving back the screen maintained by the 2nd Armoured Division. Wellingtons bombed Tripoli and Sirte air bases; Blenheims bombed and machine-gunned the advancing enemy columns, while No. 3, assisted after the first day by a flight of No. 73, strove with some success to protect the retiring British forces from enemy aircraft, which, now that the battle was joined, accepted more risks than formerly. At 11.40 a.m. on the 31st patrolling Hurricanes sighted two Me-110's about to bomb troops south of Agedabia and Campbell destroyed one while the other fled. Only five minutes later two Italian formations each of five Fiat BR-20 bombers were dispersed before they could complete their attacks. But the efforts of a handful of aircraft could not restore balance to the land battle, and, by the evening of 2nd April, the 2nd Armoured Division had withdrawn north-east of Agedabia and a further withdrawal was contemplated. Benina was now in danger and Got es Sultan, thirty miles to the east, had been prepared to receive No. 3, but as forward reconnaissance and attacks on Tripoli depended on use of Benina, the Australians were required to stay until the last minute. At last, at 9 o'clock in the morning of 3rd April, Benina was evacuated. Anything of value that could not be taken was destroyed and all aircraft, even those from other units under repair, were flown off. Operations were not disrupted as nine Hurricanes took off from Benina, patrolled between Agedabia and Antelat, and then landed at Sceleidima, whence a second similar patrol was made. This time the Australians landed at Got es Sultan and during the afternoon operated for the third time. During the second of these patrols, seven Hurricanes of No. 3, with four of No. 73, dived unseen on a number of Me-110's and Ju-87's, probably eight of each, which were positioning themselves to dive-bomb a target fifteen miles south of Sceleidima. In this surprise attack five enemy aircraft were destroyed, four probably destroyed and two damaged. Any elation at this victory was soon dissipated when at 10 o'clock the same night, the squadron was ordered back to Maraua well east of Barce. The 3rd April had been a calamitous day for the 2nd Armoured Division which, reduced by shortage of petrol and mechanical breakdowns more than by enemy action, could no longer hold its positions, and a general withdrawal to the Derna-Mechili line was ordered. During the next few days events went from bad to worse. Faulty communications and petrol difficulties led to the division and destruction of much of the British armour. Some of the surviving units of the 2nd Armoured Division reached Tobruk into which the 9th Australian Division had been withdrawn, while others, after a stubborn rearguard action, were driven over the border into Egypt. By the 11th the investment of Tobruk was complete and the enemy was beginning to consolidate his positions in Cyrenaica.

The small R.A.F. force available did its best to assist the army, but was hampered by the need to be constantly on the move. No. 3 Squadron left Got es Sultan at 11 p.m. on 3rd April and losing two vehicles during the night in accidents on the choked roads, reached Maraua at 11 o'clock the following morning. Twenty-four hours later they were on the road again bound for Martuba, which was reached at 6 p.m. on the 5th, two cooking trailers having been abandoned on the way. Four hours later they were ordered back to Gazala, but even there no respite was found, for instructions awaited them to withdraw after one day's operations to Sidi Mahmud, five miles south of Tobruk. Accordingly, late on the 6th the road convoy was again moving eastwards, and as the solid ground of the Jebel Achdar had now been left behind, the discomfort of a severe dust storm added to the normal difficulty of night travel. At 2 a.m. on the 7th, in the belief that Sidi Mahmud could not be far off, No. 3 halted for the night, only to find at dawn that the convoy had stopped alongside the landing ground itself. Nor was the end of this ordeal yet in sight, for the same evening saw the squadron again on the road, now heading for LGE-79 about forty miles east of Salum and to the south of Buq Buq. After four days here, it was necessary, on 12th April, when German troops had reached the Egyptian frontier, to retire still farther to Mersa Matruh, and on the following day the final stage was accomplished when No. 3 moved to Sidi Haneish leaving a small refuelling party at Sidi Barrani which was to act as an advanced base. In ten days the Australian squadron had thus retreated more than 500 miles and operated from nine different airfields, and it is against the background of such conditions that the work of the units in Cyrenaica must be judged.

Flying operations followed the pattern contained in the General Order of 22nd March. Bombers attacked whatever strategic and tactical targets remained within range as they fell back. No. 6 Squadron R.A.F. struggled to satisfy the tactical reconnaissance requirements of the 2nd Armoured Division while to No. 3 fell the task of providing air cover for the retreating army. Adequate cover was obviously impossible but much useful work was done in protecting units especially exposed to enemy attack. Thus on 4th April fourteen Hurricanes patrolled between Msus and Sceleidima where 2nd Armoured Division was attempting to re-form. On the following day, operating from Maraua, No. 3 was primarily concerned with covering the withdrawal of 9th Australian Division through the congested defile of the Barce Pass. This duty was uneventful but late the same afternoon eight Hurricanes came upon nine Ju-87's harassing troops of the 2nd Armoured Division near Charruba. The Stukas attempted to escape by diving steeply almost to ground level but one failed to level out and crashed, while another four were shot down for the loss of one Australian, Flying Officer Edwards.⁸ An hour later Perrin led nine Hurricanes to the same area and intercepted another twelve Ju-87's which were taken completely by surprise. They made no attempt at evasive

⁸ F-Lt A. M. Edwards, 250711; 3 Sqn. Traveller; of Malvern, Vic; b. Armadale, Vic, 13 Apr 1914. Edwards was picked up by HQ 2 Armd Div but subsequently became a prisoner.

action and in a battle lasting only a few minutes nine more Stukas were believed to have been destroyed⁹ and the Hurricanes flew on to their new base at Martuba. The strain of continuous operations and the difficulty of serviceing aircraft while daily withdrawing, began to tell on the serviceability rate of No 3, which was to have rested on 6th April. The confused situation around Mechili, however, called for continuous operations, so that by the 7th, the Australians had recorded another twenty-four sorties, one patrol of three destroying¹ two Ju-52 transport aircraft found unloading supplies into lorries near Mechili shortly after noon on that day.

A reorganisation of fighter duties late on 7th April reversed the roles of No. 3 Squadron R.A.A.F. and No. 73 Squadron R.A.F., both of which were now incorporated into No. 258 Wing. The latter squadron, except for its detachment with the Australians, had remained static at Sidi Mahmud charged with the defence of Tobruk. It now remained forward while No. 3 fell back into Egypt to protect Salum and reinforce No. 73 as required. Until 13th April No. 3 did very little flying as support at Tobruk was requested only twice, and the five-day lull was used to restore both men and machines to their normal state of efficiency. On 12th April Headquarters R.A.F. Cyrenaica was absorbed into No. 204 Group R.A.F. but the change was of little importance to the Australians who continued to operate from Sidi Haneish and Sidi Barrani for a week only until 20th April. During this week sixty-three sorties were flown, many of them by single aircraft ranging as far afield as Tobruk. Offensive patrols and attacks on enemy transport were also flown as required. Near Tobruk, on 14th April, Arthur and Lieutenant Tennant² (South African Air Force) after a sharp fight with three Me-110's sent two enemy machines diving steeply apparently out of control.³ The following day Jeffrey took off at noon to attack two Italian bombers reported over Sidi Azeiz, but failing to find them, turned on to the Bardia-Capuzzo road to strafe enemy vehicles. Suddenly he saw four Ju-52 aircraft flying south. A search having revealed no escort he turned quickly to attack but found the transport aircraft had meanwhile landed in considerable confusion, one alighting down-wind being rammed by a second approaching cross-wind. Only one was still airborne and this Jeffrey shot down and then strafed and set on fire the three on the ground.

On 20th April the Australians were ordered to hand over all aircraft to No. 274 Squadron R.A.F. and proceed to Aboukir on leave before re-arming with Tomahawk aircraft. During this first tour of No. 3 Squadron in the desert, originally as an army-cooperation and then as a fighter squadron, it had flown 1,262 sorties, claimed the destruction of forty-seven enemy aircraft, probably destroyed ten more and damaged thirteen

⁹ All RAF sources agree in allowing 3 Sqn 10 victories and 73 Sqn detachment 4 victories on 5 Apr but German figures show only 3 Stukas lost and 1 damaged.

¹ According to German figures—"damaged". This action was watched by the gunners of 2/3 Aust A-Tk Regt forming the rearguard at Mechili.

² Lt A. A. Tennant, 47504 SAAF. 3 Sqn, 1 Sqn SAAF. Draftsman; of Ermelo, Transvaal, S Af; b. Ermelo, 22 Nov 1918. Killed in action 2 Aug 1941.

³ German figures admit loss of 1 Me-110 in this locality on 14 Apr.

others at a cost of twelve aircraft and six pilots. Ably as it acquitted itself during the advance and at Benina, nevertheless at no other time did it quite achieve the height reached during the withdrawal. On 3rd April there were seventeen serviceable Hurricanes and three awaiting repairs at Benina. In the following five days while the squadron fell back 400 miles four of these had been lost and three damaged. Nevertheless, although a satisfactory technique for operating aircraft on the move had yet to be devised, the squadron achieved 135 sorties during that period. The seasoning process was complete.

CHAPTER 4

GREECE, SYRIA AND THE WESTERN DESERT

WHEN, early in May 1941, No. 3 Squadron moved to Aqir and then to Lydda in Palestine to re-equip with Tomahawk fighter aircraft, the situation in the Middle East was full of anxiety. Cyrenaica and Greece had been lost; an invasion of Crete was imminent; revolt had broken out in Iraq; Syria was a most undependable neutral and the campaigns in East Africa were still in progress. British resources to meet these commitments were woefully inadequate, for during April losses and wastage of armoured vehicles and aircraft had been very heavy. It appeared that the division of meagre ground and air forces to meet threats from all directions would mean a repetition of the unhappy experiences in Cyrenaica and Greece, where the Germans had shown prompt ability to concentrate their forces in decisive numbers.

In Greece Australian participation in air operations was very small, and although Australian ground forces had a major role in the campaign proper, it must be remembered that the army-cooperation squadron (No. 3 R.A.A.F.) originally intended by the Australian Government to work in close concert with these troops was not available because it was then engaged in a purely defensive fighter role at Benina. Repercussions of the Greek campaign, not only in military and political but also in service and interservice spheres, were so important, however, that it warrants some description, albeit brief.

British planning in the event of war had consistently envisaged a Balkans and Levantine *bloc* to resist the Axis. Army Council Instructions dated 24th July 1939 to the General Officer Commanding-in-Chief in the Middle East ordered him to effect coordination with "... French military authorities in North Africa, Syria and French Somaliland; the Turkish General Staff; and possibly ultimately the Greek and Rumanian General Staffs". Air Marshal Longmore's directive of 11th June 1940 clearly stated his responsibility for any air action necessary in "... Turkey, Yugoslavia, Rumania, Bulgaria, Greece" These instructions sprang in part from the guarantees which Britain and France gave to Greece and Rumania shortly after the Italian seizure of Albania in April 1939, and a joint declaration by Britain and Turkey on 12th May 1939, that, in the event of aggression leading to war in the Levant, the two countries would mutually aid each other. This Anglo-Turkish declaration lacked the force of a definite agreement but great efforts continued to be made to secure such a pact because Turkish cooperation was considered particularly important, not only because of military and geographical factors, but also because, as a prominent member of the Balkan *Entente*, she might be able to influence other countries to make a bold stand.

Military and political events during the first year of war made it extremely difficult to achieve the objects of these plans. The guarantee to

Poland did not prevent her being overrun; Britain and France were unable to save Denmark and Norway or even Belgium, Holland and Luxembourg along whose frontiers their main forces had been massed. France herself was tottering before Italy entered the war and the threat of "aggression leading to war in the Mediterranean" assumed real proportions. Neutral opinion throughout the world could not but consider that Britain, heavily beset in her own islands, must use what scanty forces were available in the Middle East for a desperate defence of her own prime needs and would have little to spare to help others. Egypt, which had apparently most to lose, declined to declare war on Italy; Iraq did nothing and Turkey remained a benevolent non-belligerent. On 1st July, before the Battle of Britain began, Rumania denounced the Anglo-French guarantee, while others neutrals were influenced by the apparent moderation of the Vienna Awards. Nevertheless British policy continued to aim at stronger links with Greece and Turkey, although little specific help could be promised at the very time when these countries were in ever-growing need of reassurance.

From mid-1940 despite official protestations of friendly intentions Italy showed increasing hostility towards Greece, but it required the major outrage of the flagrant sinking of the cruiser *Helle* by an Italian submarine on 15th August before General Metaxas, the Greek Prime Minister, inquired of Britain what aid she could give in the event of war. In an atmosphere of doing everything to prevent any Italian excuses for invasion, nothing had definitely been decided when at dawn on 28th October, Italian troops moved into Greece from Albania, hard on the heels of an ultimatum which gave the Greeks only the choice of capitulation or war. General Metaxas immediately invoked the British guarantee and though welcoming the promptness with which a British survey party arrived in Crete to establish a naval base at Suda Bay, he expressed strong desires for more positive (and in particular air) assistance on the mainland itself. On his own initiative Longmore ordered No. 30 (Blenheim) Squadron which consisted of one flight of fighters and one of bombers to proceed to Greece because, as he cabled to the Chiefs of Staff, "... it has become politically absolutely essential to send a token force to Greece even at the expense of my forces here". The British War Cabinet, conscious that if Britain did not give positive aid to the Greeks who were fighting with great determination then all hope of gaining Turkey as an active ally would lapse, approved Longmore's act and on 4th November decided to give further air support. Air Commodore D'Albiac,¹ then commanding the air forces in Palestine and Transjordan, was chosen to command the "British Air Forces in Greece", and No. 30 Squadron was to be joined by two Blenheim-bomber squadrons and a Gladiator-fighter squadron as soon as administrative arrangements could be made. Wellingtons from the Canal Zone, staging through Eleusis, were to bomb Italy and Albania on suitable nights.

¹ Air Marshal Sir John D'Albiac, KBE, CB, DSO, RAF (RM 1914-15, RNAS 1915-18, RAF 1918). AOC Palestine-Transjordan 1939-40, RAF in Greece 1940-41, RAF Iraq 1941-42, RAF Ceylon 1942-43; Dep Cdr Med Allied TAF 1944; Dir-Gen Personnel Air Ministry 1945-46. Regular air force off; b. 28 Jan 1894.

This force, although by no means large, taxed the resources of the three Commanders-in-Chief who at this time were also required to undertake the defence of Crete so that Greek forces could be withdrawn to the mainland. Longmore was promised one Hurricane and two Wellington squadrons from the United Kingdom, but until these and other Wellingtons which were to attack Italy from Malta should arrive, he considered that the defence of Egypt, on which all else depended, was in jeopardy. The expedition which sailed for Greece in mid-November was heterogeneous, with most of the engineer, signals and anti-aircraft personnel and equipment hastily collected from army units. However, Nos. 84 and 211 (Blenheim) Squadrons established themselves at Eleusis and Tatoi to bomb Valona, Durazzo and other Italian communications centres in Albania, while the Gladiators of No. 80 attempted to give what support they could from inadequate airfields at Trikkala and Yannina, there being none available nearer the front line.

Meanwhile Hitler, who had not been consulted before the Italian attack on Greece, took no immediate action to mitigate the discomfiture of his ally. Germany, however, was making obvious preparations to control both Rumania and Bulgaria. This would not only permit her to invade Greece almost at will, but also threatened Turkey, a potential ally on which British hopes were still focused. Neither of these countries, however, was willing to commit any overt act which could be construed by the Germans as hostile and, in particular, D'Albiac was not allowed to site airfields in northern Greece which would not only have given some insurance against a German invasion, but would greatly have facilitated his existing operations against the Italians. By early January 1941, with affairs going very well in Libya and Albania, the British War Cabinet was inclined to meet the potential threat from Germany by increasing military aid to Greece in order that she would resist any demands put on her by Hitler. Wavell and Longmore were ordered to visit Greece and discuss arrangements for a somewhat larger British contingent there. During these talks in mid-January Longmore asked for the preparation of airfields in the area south and west of Mount Olympus, adequate to accommodate a proposed eventual force of fourteen squadrons although only three could be sent immediately to join the four already in Greece; Wavell found that General Papagos, the Greek commander-in-chief, required chiefly the very type of units and equipment (i.e. anti-aircraft and transport) of which he himself was desperately short. The final Greek decision was that what Wavell was able to offer would constitute a danger, as it would antagonise Germany without giving any real defence; similarly Longmore's requirements in the Salonika area were not approved, although some airfields would be developed there ostensibly for the rehabilitation of the Greek Air Force itself, and an increase in British squadrons in other areas was welcomed.

There is little doubt that the Commanders-in-Chief Middle East then waging campaigns in East Africa and Libya, which if fought to a conclusion might have turned the Italians completely out of Africa, were



(Air Ministry)

Pilots of No. 3 Squadron at Rosh Pinna airfield in northern Palestine during the Syrian campaign. A Tomahawk aircraft is in the background. Left to right: Sgts R. K. Wilson, T. D. Parker, D. Scott, G. E. Hiller; F-O's W. G. Kloster, P. St G. B. Turnbull; F-Lt J. R. Perrin; Sqn Ldr P. Jeffrey; Sgt A. C. Cameron; F-Lt A. C. Rawlinson; Sqn Ldr J. C. Laver (medical officer); F-Os J. H. W. Saunders, W. E. Jewell; F-Lt L. E. S. Knowles; F-O T. H. Trimble.



Tomahawks of No. 3 Squadron on patrol over Syria in July 1941.

(Air Ministry)



(Air Ministry)

At Rosh Pinna airfield in northern Palestine during the Syrian campaign; pilots of No. 3 Squadron bivouacked in a stand of Australian eucalypts.



(Air Ministry)

Back in the Western Desert after the Syrian campaign, a No. 3 Squadron Tomahawk is refuelled, September 1941.



Permanent barracks at Pembroke Dock, 1940.

(R.A.A.F.)



Dug-in camp in Western Desert, 1943.

(R.A.A.F.)

somewhat relieved at the Greek decision not to accept the proposed increased assistance. The Chiefs of Staff, however, were still seriously perturbed by German infiltration into Bulgaria and they proposed operations to seize Rhodes and other Dodecanese Islands, while on 31st January Mr Churchill sent a personal appeal to President Inonu of Turkey, pointing out the rapidly growing danger to that country, and offering a minimum contribution of ten squadrons of aircraft and 100 anti-aircraft guns to assist in its defence. This latter offer was refused, again to the temporary relief of Longmore, but the Commanders-in-Chief were told to halt the Libyan offensive after the capture of Benghazi, reduce both air and ground forces in Cyrenaica to bare garrison proportions, and to prepare a maximum force for employment in Greece should events require it. Meanwhile, General Metaxas had died on 29th January and his successor M. Koryzis re-affirmed both the Greek intention to resist and a disinclination to allow British forces in Macedonia until a German invasion actually occurred. The new Prime Minister was, however, anxious to discuss the nature and extent of probable British aid should Germany attack, and accordingly the British Foreign Minister, Mr Eden, as plenipotentiary with General Dill, the Chief of the Imperial General Staff, as his military adviser arrived in Greece for a second meeting on 22nd February, following preliminary staff talks in Cairo. At this meeting the Eden Mission and the Greeks devised a plan to oppose a German invasion of Greece, irrespective of the attitude of Yugoslavia and Turkey, although it was hoped that both would aid Greece. This Aliakmon line plan was endorsed by the British War Cabinet, and administrative arrangements for the transport of British forces to Greece went forward while Mr Eden made approaches to the Regent of Yugoslavia and the President of Turkey, soliciting their active help now that Britain was pledged to definite large-scale action. Mr Eden did not reach Athens again until 2nd March when Bulgaria had already formally joined the Axis, and as neither Yugoslavia nor Turkey had agreed to joint action, he counselled immediate withdrawal to and consolidation of the Aliakmon line. The Greeks, however, largely for nationalistic reasons, no longer desired to do this. The first convoys were due to sail from Alexandria on 4th March and if the British were to withdraw their offer of an expeditionary force because of the changed circumstances which now gave little real hope of successful defence, a very swift decision was necessary. Finally the War Cabinet on 7th March authorised the enterprise to proceed, but political rather than military issues were paramount in the interchange of views which reached this agreement. Politically it would have been fatal to withdraw while militarily, although the strategic aim was accepted as correct, there were grave doubts in many quarters as to the ability of the ground, naval and air forces actually available to carry it out.

Such was the broad flow of events which led up to the arrival of a British Commonwealth force in Greece. It will be seen that negotiations, conducted with ever-growing sense of urgency, left much room for recrimination should the enterprise, as it did, fail in the end. Throughout dis-

cussions, not only with Greece but also with Turkey, air assistance was a focal point of interest and very widely differing accounts of these commitments have survived. General Blamey² at the time was under the firm impression that twenty-three squadrons would go to Greece³ and although this was clearly a misunderstanding it was to have many repercussions later. The story is quite clear in the early months when an almost exclusively Italo-Greek war was in progress. Britain offered and did dispatch four squadrons during November 1940. The only additional help projected at this stage was the possible addition of a second Gladiator squadron and this was partly effected by the dispatch of "A" Flight of No. 112 Squadron on 4th December to work in conjunction with No. 80 at Yannina. Confusion began in January 1941 when British fears of imminent German moves towards the Balkans led to intense political activity during which the offer of air squadrons was to be the cement to build up a Graeco-Turkish defence wall against the Axis. The War Cabinet, when ordering the Commanders-in-Chief to open discussions with Metaxas in January, certainly had in mind the provision of three Hurricane and two Blenheim squadrons. Longmore, however, would not commit himself during these discussions to allot a definite number of squadrons, although he clearly implied that, if suitable airfields were available in the Salonika region, an additional ten squadrons might be established there under certain circumstances. In fact, these squadrons, all that could be safely operated from airfields which the Greeks were willing to make available, were provided shortly afterwards to assist the Greek counter-offensive in Albania. Then came the offer of ten squadrons to Turkey, although these would almost certainly be alternative rather than additional to squadrons sent to Greece. During the final discussions with Greece late in February the air picture was obscure. The assumption in London had been that possibly an additional five squadrons might go to Greece immediately and that, depending on events, the total force might rise to a strength of perhaps twenty squadrons by mid-1941. Longmore, however, was concerned at the slow arrival of aircraft for re-equipment and expansion, and at the same time had to meet the threat of *Fliegerkorps X* in Sicily by stationing two of his much-needed Hurricane squadrons to defend Benghazi and Tobruk. He expressed hopes of increasing the force in Greece but could give no firm dates. In the event, only one more squadron transferred permanently to Greece and that only towards the end of the campaign.

Even this calculation by squadrons is very misleading. Apart from the restriction of operations because of weather, none of the squadrons based in Greece was ever at full fighting strength because maintenance facilities were poor, salvage of crashed aircraft almost impossible, and replacements tardy. Also, for the greater part of the time squadrons were disposed,

² Field Marshal Sir Thomas Blamey, GBE, KCB, CMG, DSO, VX1. (Brig-Gen GS Aust Corps 1918-19.) GOC 6 Div 1939-40, I Corps 1940, AIF in ME 1940-41; Dep C-in-C ME 1941; GOC-in-C AMF 1942-46. Of Melbourne; b. Wagga Wagga, NSW, 24 Jan 1884. Died 27 May 1951.

³ This matter is discussed in G. Long's *Greece, Crete and Syria* (in the army series of this history), Chapter 1. It is most probable that Blamey was actually informed that Longmore had 23 sqns in the eastern Mediterranean and that these would support the campaign, as indeed all of them did in varying senses, although only a few were physically located in Greece.

because of political considerations, on airfields geographically inappropriate for their chosen role or physically incapable of sustaining a high rate of effort. There were divergent opinions between British and Greeks concerning the tactical employment of aircraft, and, although early in 1941 the squadrons were applied to the Greeks' own expressed needs, they were never in a position to secure decisive results even on the Albanian front. When Germany also entered the war the rapid surge of events on land, entailing constant loss of airfields, put the air forces in the position of being virtually unable to influence the battle at all, although they did valuable work in a defensive role.

As previously stated, Australian representation in these air events was very small, although in skeletal fashion it may serve to indicate the main themes. Seven Australian officers serving in Wellington-bomber squadrons made periodic raids commencing on 7th November against Valona, Brindisi and other supply ports, but although individual sorties were successful the scale of effort was quite inadequate to have any appreciable effect on enemy build-up. The Wellingtons were also required to support the Libyan campaign during December and January; to bomb Rhodes and other Dodecanese islands from which enemy aircraft at this time were successfully blocking the Suez Canal with mines; and then, as a matter of urgency, to attack Tripoli and ports along the Gulf of Sirte through which Italian and German forces were arriving to poise a new threat



to Egypt. Several other Australians flew reconnaissance and convoy-escort patrols during March and April both in connection with the movement of troops to Greece and in preparation for their withdrawal. Only six engaged in the air fighting proper from bases in Greece but their achievements, even accepting the fallibility of contemporary estimates, were out of all proportion to their numbers.

The first Australians to arrive were Squadron Leader Hickey and Flying Officer Graham⁴ on 17th November with the first flight of No. 80 Squadron R.A.F. On the next day, following the arrival of the rest of the squadron

⁴ Sqn Ldr G. F. Graham, 40049 RAF, 257525; 80 Sqn RAF. Regular air force off; of Gun-bower, Vic; b. Foster, Vic, 10 Mar 1917.

at Eleusis, Hickey moved one flight up to Trikkala where it operated immediately and successfully during the afternoon in a clash with a large Italian patrol. The second flight arrived on the 23rd but the squadron remained on the ground because the airfield was unserviceable.⁵

By the 27th, however, it was possible to move one flight to Yannina on the western side of the Pindus Mountains, and therefore more suitably placed than Trikkala for operations over the battlefield. Several such patrols were flown and on the 28th Hickey led 6 Gladiators in an exhilarating dog-fight against 20 Fiat CR-42's, during which 7 of the enemy were claimed as shot down.⁶ Fry arrived at Yannina on 4th December with a flight of No. 112 but by this time Hickey found that it was almost impossible to keep the aircraft properly serviced at Yannina and on the 6th the whole detachment transferred to Larisa, to which airfield the Trikkala flight had already moved. The serviceability rate of the squadron was very low, but although a major repair organisation existed in the Athens area the roads to Larisa were too bad for aircraft to be transferred and accordingly all available manpower on the squadron set to work to do its own repairs, and within a week full serviceability had been restored.

Meanwhile the Italians had strengthened their fighter forces in the frontier area, so early on 19th December fourteen Gladiators were flown back to Yannina. Then occurred a typical incident illustrating not only the difficulties of operations but also the great loyalty and humanity of Hickey who so impressed his contemporaries that Longmore took the unusual step of mentioning him by name in the main body of his dispatch dealing with this campaign.⁷ At 11 a.m. that day Hickey set out leading 13 Gladiators for an offensive patrol over the Tepelene area. Five Savoia 79's were met and one was apparently shot down but at the same time one British pilot was severely wounded and forced to bale out. Hickey, ever mindful of his junior pilots, circled the descending parachute until he had attracted the attention of Greek troops nearby. He then flew off to land in difficult country near Argyrokastron and organised a relief party to seek and bring in the wounded man. He led this party over miles of mountain country, frequently under heavy shell fire, and on return he remained all night with the pilot to see that everything possible was

⁵ "There were no all-weather aerodromes," writes D'Albiac (*Despatch on Air Operations in Greece 1940-41* (1947) para 9) "and on the mainland of Greece there are few areas in which aerodromes of any size can be made In the Larisa plain there were many sites possible but by November the rains had already commenced and, although I did station a fighter squadron in that area on its arrival, it was soon flooded out and aircraft were grounded for ten days before they could be moved."

Longmore was in Greece at this time and was anxious to visit No. 80 so he flew up to Trikkala but "the landing ground was waterlogged so we had to land at the adjacent aerodrome of Larisa". (A. M. Longmore, *From Sea to Sky, 1910-45* (1946), p. 241.)

⁶ There is more than the usual difficulty in assessing the results of air fighting in Greece because some of the operational records are palpably reconstructions after the event, the originals being lost or deliberately destroyed during the withdrawal. There is an air of self-justification about some of these documents which inhibits full credence. However, in this instance the operations record book records "seven shot down—confirmed" (but confirmed by whom?). Longmore's dispatch (para 30) gives No. 80 Squadron credit for shooting down 42 enemy aircraft with 12 more unconfirmed for the loss of 5 pilots before the end of 1940. On the other hand enemy records make this total, and by implication the score of 28 Nov, appear to be inflated.

⁷ The fragmentary records give few details of Hickey's combats, but in his official dispatch, Longmore, in paying tribute to No. 80's successes against the Italians concludes: "I cannot speak too highly of their gallant commander, Sqn Ldr W. J. Hickey D.F.C., who was killed in an air fight on December 21st."

done for his comfort. Only then did he return to his squadron and within twenty-four hours he too died of wounds received during a similar battle. On the 21st he was leading the ten serviceable Gladiators in an attack against six Italian bombers over Argyrokastron when very heavy enemy fighter escorts (54 CR-42's according to the operations record book) intervened. Greek eye-witnesses alleged that he was fired on by an enemy fighter while descending by parachute but it is impossible to tell whether his wounds were caused in this manner or during the combat itself.

Meanwhile the Blenheim bombers with whom there were only two Australians exerted what pressure they could from Menidi and Eleusis airfields against the Albanian front and communications in the rear. Both these airfields were 200 miles distant from the Italian lines and the absence of fighter escort made it necessary to restrict attack mainly to those periods when cloud cover was available. Severe icing conditions and almost continual cloud over the Pindus Mountains added to the normal hazards; on 7th December of nine aircraft which set out to bomb Valona only two found the target, five losing their way and two crashing in the mountains. The alternative route along the coast reduced considerably the radius of action of the bombers and also lessened the possibilities of surprise attacks. Graham, Fry and Flying Officer Cullen⁸ remained with the fighters at Yannina and Larisa but during the severe winter months the Gladiators could do little.

The Greek General Staff planned a counter-offensive for February with the object of capturing Valona. Success would not only give much greater strength in combating increasing Italian pressure but would help to secure the left flank in the event of a German drive from the north. Accordingly strong pressure was put on D'Albiac to employ his squadrons in a ground-support role during this campaign. He agreed somewhat reluctantly and established a wing headquarters in the forward area. Detachments of Nos. 30, 84 and 211 Squadrons moved up to Paramythia so that their activities could be coordinated with those of the fighters based at Yannina. The Greek offensive opened on the 13th and the morale of front-line soldiers reached its greatest height with the success of the fighter pilots in low strafing attacks and in a series of victories which were won over their own lines.⁹ It is impossible to escape the conclusion that this enthusiasm engendered a situation in which hero-worshipping local authorities exaggerated the results of air battles although the pilots, who were rarely in a position to see their victims crash, put forward their claims in good faith. Thus on 14th February Cullen and Graham joined in a fight during which seven CR-42's were reported shot down over Tepelene, and six days later Cullen personally destroyed two more Italian fighters over Paramythia. On 27th February newly-acquired Hurricanes of No. 80 were given the credit of shooting down nine CR-42's but the greatest air battle of this period developed on the following day when nine Hurricanes (No.

⁸ F-Lt R. N. Cullen, DFC, 39967 RAF; 80 Sqn RAF. Regular air force offr; b. Newcastle, NSW, 5 Jun 1917. Killed in action 4 Mar 1941.

⁹ Congratulatory messages were received almost daily, although AVM D'Albiac seems to have believed throughout that his aircraft were being misemployed. (See his dispatch, para 20.)

80 Squadron) and nineteen Gladiators (No. 112 Squadron) met large numbers of Italian fighters and bombers over the front line. At the end of an hour and a half No. 80 claimed fifteen victories and No. 112 another ten, and of these Cullen was credited with five—a squadron record—and Fry with two.¹ Cullen was building up a formidable reputation for on the 23rd he had shot down a chance-encountered enemy seaplane, and on 3rd March south-west of Corfu he shot down four more aircraft bringing his assessed victories during the campaign to thirteen. His tally was to go no higher, however, for on the following day while escorting Blenheims he was shot down, although Fry claimed one of the seven enemy aircraft destroyed in the same action.

Early in March bad weather interfered seriously not only with air operations but also the general progress of the Greek offensive so that the advantage gained on the ground could not be exploited. The decision to send a Commonwealth expeditionary force to Greece also increased the demands on the small air force (now seven squadrons). No. 84 devoted a considerable number of sorties to attacking airfields in the Dodecanese from which British convoys might be threatened and Flight Lieutenant Boehm² met with some personal success in attacks on Maritza and Calato on Rhodes. The great event of the period, however, was the Battle of Matapan. On 27th March an Australian pilot of No. 230 (Sunderland) Squadron (Flying Officer Bohm³) reported a force of Italian cruisers and destroyers eighty miles east of Cape Passero in Sicily, steering south-east and possibly en route to attack convoys then passing between Alexandria and Greek ports. On the basis of this and subsequent reports D'Albiac ordered Nos. 84 and 113 at Paramythia to provide striking forces. On 28th March Boehm led five Blenheims on this task and although two were forced to return through engine trouble he continued with the others and personally claimed two direct hits⁴ on a cruiser with 500-lb semi-armour-piercing bombs.

By 6th April when the Germans invaded Greece, of the Australians only Fry and Graham were left. In the fortnight which followed, as the operational record book of No. 112 somewhat feelingly states: "The squadron went out alone with from twelve to sixteen Gladiators to meet anything

¹ Official and semi-official British and Greek accounts of this action give figures varying between 25 and 35 enemy aircraft destroyed. D'Albiac in his dispatch (para 21) states quite categorically "... destroyed 27 enemy aircraft without a single loss to themselves All the enemy aircraft destroyed were confirmed from the ground and caused the greatest jubilation". On the other hand Santoro in *L'Aeronautica Italiana nella IIa Guerra Mondiale*. p. 189, is particularly scathing about this particular claim. Italian records purport that only 46 aircraft were lost from all causes over Greece and Albania during the first quarter of 1941. Whatever the exact results of this battle it had a tremendous effect on Greek morale: "Civilians and soldiers passing us in the streets made the Sign of the Cross, saying 'Long life to you. Thank the Almighty who sent you to us,'" reported the CO of the RAF Wing.

² F-Lt D. G. Boehm, 39452 RAF; 84 Sqn RAF. Regular air force offr; of Torrens Park, SA; b. Adelaide, 11 Sep 1915.

³ Sqn Ldr R. S. Bohm, 40596 RAF. 230, 547 and 190 Sqns RAF. Regular air force offr; of Rockhampton, Qld; b. 18 Jan 1915.

⁴ Although the operational record book of 84 Sqn gives circumstantial detail thus: "Much yellow and black smoke was seen issuing for over ten minutes, the ship steered towards the other vessel and then stopped"—it is practically certain that no damage was caused. Cunningham in his *Despatch on the Battle of Matapan* (para 11) pays, however, high tribute to the indirect effect of the Blenheim attack.

which might come out of Albania, or in other words, the Italian Air Force . . . these Gladiators were not armour plated, had no self-sealing tanks, and were nearly 100 miles per hour slower than the Italian machines . . .” On one occasion Fry is reputed to have engaged alone fifteen enemy aircraft over the airfield at Yannina. The collapse of Yugoslavia and of the Greek armies in the west followed by the withdrawal of Commonwealth forces to the Thermopylae line forced the gallant Gladiators to abandon Yannina and at the same time brought Athens within range of German fighters. Hopelessly outnumbered, a handful of fighters were allotted the task of defending the capital and the Piraeus, at first from Eleusis and later from Argos, but in the absence of satisfactory early-warning procedures continuous enemy ground-strafting attacks took their toll.⁵

On occasions the Hurricanes performed with great credit but they were unable to withstand the enormous enemy superiority in numbers and disposition. On 24th April (four days after the Greek Government stated its inability to resist further and asked the British to withdraw) to avoid almost certain destruction on the ground, the aircraft were flown to Crete. Here they were joined by Blenheim fighters hurriedly transferred from Aden to protect convoys evacuating troops from Greece. Flight Lieutenant Whittall⁶ of No. 203 Squadron R.A.F. was lost during a typical battle on 27th April when three Blenheims challenged vastly superior enemy forces searching for British ships, and the Blenheims were withdrawn after one week. Only No. 112 remained on Crete when the German airborne assault began and the Gladiators were restricted almost entirely to sorties over the airfield and to usually vain attempts to intercept enemy reconnaissance aircraft. Fry figured in one more hopeless but magnificent episode when he attacked single-handed a large force of Me-110's but he was shot down and captured before the few remaining serviceable aircraft were withdrawn to Egypt on 19th May.

British air power in Greece had thus achieved little in a military sense. The force was never strong enough or suitably based to wage a successful offensive against enemy supply centres and lines of communication as D'Albiac intended during the first phases. There was much individual heroism but little direct benefit from the brief employment in a tactical role to support the Greek offensive against Valona. When the main struggle opened military reverses prevented the basing of air forces in forward areas, just as previously physical and political factors had done.

⁵ On 15 Apr HQ BAF Greece signalled HQ RAF ME that sqn strengths were:

113	Sqn—nil	Blenheims
33	”	5 Hurricanes
11	”	8 Blenheims
84	”	1 ”
211	”	5 ”
80	”	11 Hurricanes and Gladiators
30	”	4 Blenheim-fighters
112	”	12 Gladiators

⁶ F-Lt J. C. Whittall, 39356 RAF; 203 Sqn RAF. Regular air force offr; of Worcester Park, Surrey, Eng; b. Neutral Bay, NSW, 10 Jan 1916. Killed in action 27 Apr 1941.

This circumstance and the fact that the campaign generally was going badly entailed almost entire concentration on purely defensive measures in rear areas, so that, entirely off balance, and denied the general protection which would have given them some measure of tactical freedom, the squadrons were eventually withdrawn. This experience was in apparent contrast to enemy air forces which in superior numbers could concentrate effective blows on any chosen target from numerous safe and well-supplied bases disposed to the west and north of Greece. In effect Greece duplicated the bitter disappointments of the Norwegian campaign a year earlier, although this time there was a marked tendency for air to act as a scapegoat for defeat. Political and public reaction especially in Australia and New Zealand was distinctly unfavourable and crystallised later into a vehement (though vague) demand that Dominion troops should not be committed to battle "without adequate air support". Relations between junior elements of the three fighting Services also suffered,⁷ while at higher levels the army and navy which had suffered considerably under enemy attack, and although appreciating the difficulties under which the air force had operated, demanded a much higher degree of purely defensive air effort.

Thus during May 1941 the British military position in the Middle East deteriorated further. However, after some anxious days, the revolt in Iraq was suppressed, and Tobruk held firm thus preventing an immediate enemy invasion of Egypt; but an attempt to recapture Salum and Capuzzo miscarried, relations with Syria worsened and by the end of the month Crete was in German hands. The enemy now possessed, in Cyrenaica, Crete and the Dodecanese, air bases from which Alexandria, the Suez Canal, dumps and depots in the Delta area, and Suez (the main British disembarkation port) could all be attacked in strength. Air power largely replaced sea power in the eastern Mediterranean basin, for naval vessels and convoys were subject to crippling attacks once outside the very limited range of fighters operating from Sidi Barrani, while conversely Axis convoys to Libya could move with relative freedom across the central Mediterranean, subject only to the attacks of submarines and such aircraft as could operate from Malta. That all the dangerous potentialities latent in this situation did not lead to complete collapse was due in part to reinforcement and rapid adaptation of British forces, and partly to German pre-occupation with plans to invade Russia, together with failure to employ their air strength in the Mediterranean against vital objectives. After the capture of Crete, German air units of *Luftflotte 4* were withdrawn from the Balkans, and *Fliegerkorps X*, formerly based on Sicily, moved to Crete and Greece. Targets in Egypt and the Levant were attacked only sporadic-

⁷ 112 Sqn, which was withdrawn to Crete and attempted first to prevent enemy reconnaissance and then to meet the tremendous shock of invasion, gives a typical example in its O.R.B.: "Throughout this period our lot was made no easier by the attitude of the army units round our aerodrome . . . the spiteful and ignorant criticisms which were hurled at us were most annoying . . . To the army an aircraft on the ground was an aircraft fit to fly."

This bad feeling manifested itself far from the battleground. In Australia aircrew trainees previously known with somewhat affectionate irony as "Menzies' Blue Orchids" became overnight "Daffodils—beautiful but oh so yellow!" a designation which, at least at first, had a savage bite.

ally, and while Tobruk bore the brunt of *Fliegerkorps X* attack, British strength was allowed to recover. The task of subduing Malta was now left to the Italian Air Force and the departure of the Germans from Sicily saw an almost immediate resurgence of British power in the central Mediterranean.

Before these developments became clear, however, it seemed necessary that the Syrian question should be resolved.⁸ While the Levant had remained remote from the battle area nothing had been done to challenge the Vichy forces, but now, should the Germans succeed in establishing themselves there, the oilfields of Persia and Iraq and the Suez Canal would be threatened. Although the British Chiefs of Staff were well aware at this time that Germany was probably intending to attack Russia, the possibility of the enemy securing Syria with relatively small forces could not be overlooked. Syria had already sent arms to the Iraqi rebels and during May had allowed German aircraft to refuel at Syrian airfields. The British Chiefs of Staff ordered General Wavell to negotiate with General Dentz in Syria for joint action against any German incursion, and meanwhile himself to prepare the largest practicable force should he be forced to take independent action. Wavell had immediately available in Palestine only one incomplete cavalry brigade and General Legentilhomme's Free French Division (actually at less than half a division in strength) whose employment in Syria was certain to intensify resistance. However, independent action by the R.A.F. was authorised by the Air Ministry and began on 14th May when Blenheims of No. 84 Squadron attacked German aircraft near Damascus.⁹ Simultaneously in the House of Commons Mr Eden warned Vichy of the consequences of allowing Germany facilities in Syria, and on 18th and 19th May airfields at Rayak and Palmyra were bombed, while Hurricanes strafed Damascus airfield. Late in May definite orders came from England to invade Syria, and while Wavell with difficulty mustered a military force, air attacks on airfields and fuel installations were continued on a small scale until 8th June when the invasion of Syria began.

A British offensive in the Western Desert designed to relieve Tobruk was already projected for mid-June, so both land and air forces available for a Syrian expedition were small. The incomplete 7th Australian Division,¹ the 5th Indian Brigade, some composite mechanised units and the Free French Division operated under the command of General Maitland Wilson.² One light-bomber, one army-cooperation, one Fleet Air Arm, and two and a half fighter squadrons were initially under the command of

⁸ G. Long, *Greece, Crete and Syria* (in the army series of this history), Chapter 15 gives a full description of the tangled background and negotiations concerning Syria.

⁹ They were escorted by 2 Tomahawks of 250 Sqn RAF flown by recently-arrived Australian pilots.

¹ One brigade was in Tobruk.

² Field Marshal Lord Wilson, GCB, GBE, DSO. GOC-in-C Egypt 1939, Brit Tps in Greece 1941, Allied Forces in Syria 1941; C-in-C ME 1943; Supreme Allied Cdr, Medit Theatre, 1944. Regular soldier; of London; b. 5 Sep 1881.

Air Commodore Brown,³ air officer commanding in Palestine and Transjordan, though he could call, if necessary, on No. 84 (Blenheim) Squadron in Iraq and the heavy bombers based in Egypt.⁴ The total number of aircraft immediately available was seventy and there was some doubt whether No. 3 Squadron R.A.A.F., which had suffered a plethora of accidents and setbacks during its conversion to Tomahawks, would be ready,⁵ but fortunately these difficulties were overcome in time. Action by these small forces against a French air force and army, numerically superior, far stronger in tanks and capable of reinforcement from France or the Balkans, contained all the elements of a gamble, but it was hoped that divided loyalties and lack of purpose would detract from French resistance.

Great emphasis was placed on the importance of capturing the main Syrian airfields which lay chiefly in Lebanon and the Anti-Lebanon, or in the depression between Aleppo and Lake Tiberias. Thus, while one brigade of the 7th Australian Division was to drive along the coast from Haifa to Beirut and the other via Metulla and Merdjayoun, the 5th Indian Brigade was to follow the Transjordan-Damascus railway line; when Sheikh Meskine and Deraa had been captured, the Free French Division was to pass through and advance on Damascus. Besides the desirability of securing the airfields and thus forestalling enemy occupation, quasi-political motives played a part in this division of a very small force into three columns. It was thought that if an apparent show of force were made in several directions, then the French sense of military honour might not be outraged and a speedy capitulation or mutual agreement would be possible. There were many, however, who warned that should the French decide to resist, their defensive task would be much simpler by having to oppose relatively weak uncoordinated columns instead of a focused attack. Furthermore, the local populace might be apathetic but the French were almost certainly commanded by officers and N.C.O.'s who mistrusted Britain because of her naval actions at Oran and Dakar and who regarded De Gaulle at best as a wilful, would-be patriot whose irresponsible defiance of Vichy was making the lot of Frenchmen everywhere more difficult than otherwise it might have been.⁶

The general R.A.F. plan was to give maximum support to these advances, while providing air protection for the ports of Haifa and Cyprus. The particular tasks soon became defined as:

³ AVM Sir Leslie Brown, KCB, CBE, DSC, AFC. Comd Adv Wing, West Desert 1939-40; AOC Palestine, Transjordan 1941-42, 84 Gp Allied Expeditionary Air Force 1943-44; Comdt School Land/Air Warfare 1944-49. Regular air force off; of Durban, S Af; b. Pietermaritzburg, S Af, 11 Jul 1893.

⁴ Sqns under Air Cmdre Brown's command were: 80, Hurricanes; 208, army cooperation (1 flight Hurricanes); 3 RAAF, Tomahawks; "X" Flight, Gladiators; 815, FAA (Cyprus).

⁵ Air Marshal Tedder wrote pessimistically to the Air Ministry on 3 Jun: "I am afraid that No. 3 with their Tomahawks will not be ready for operations. The Australians are very unexpectedly making very heavy weather over the Tomahawks, but I have applied a little ginger which, I hope, will have the necessary effect." Apart from this delay in mastering the new type, six experienced pilots of No. 3 were detached to Cyprus between 25 May and 3 Jun to fly interception patrols in Hurricanes of No. 80 until that squadron received replacement pilots.

⁶ G. Long, *Greece, Crete and Syria*, Chapter 16, gives the details of army planning and of the issues involved.

1. Provision of close and direct support for the army.
2. Fighter cover for 15th Cruiser Squadron operating off the Syrian coast.
3. Attack on strategical objectives: ports, shipping and oil installations.
4. Attack on French airfields to limit enemy air opposition.

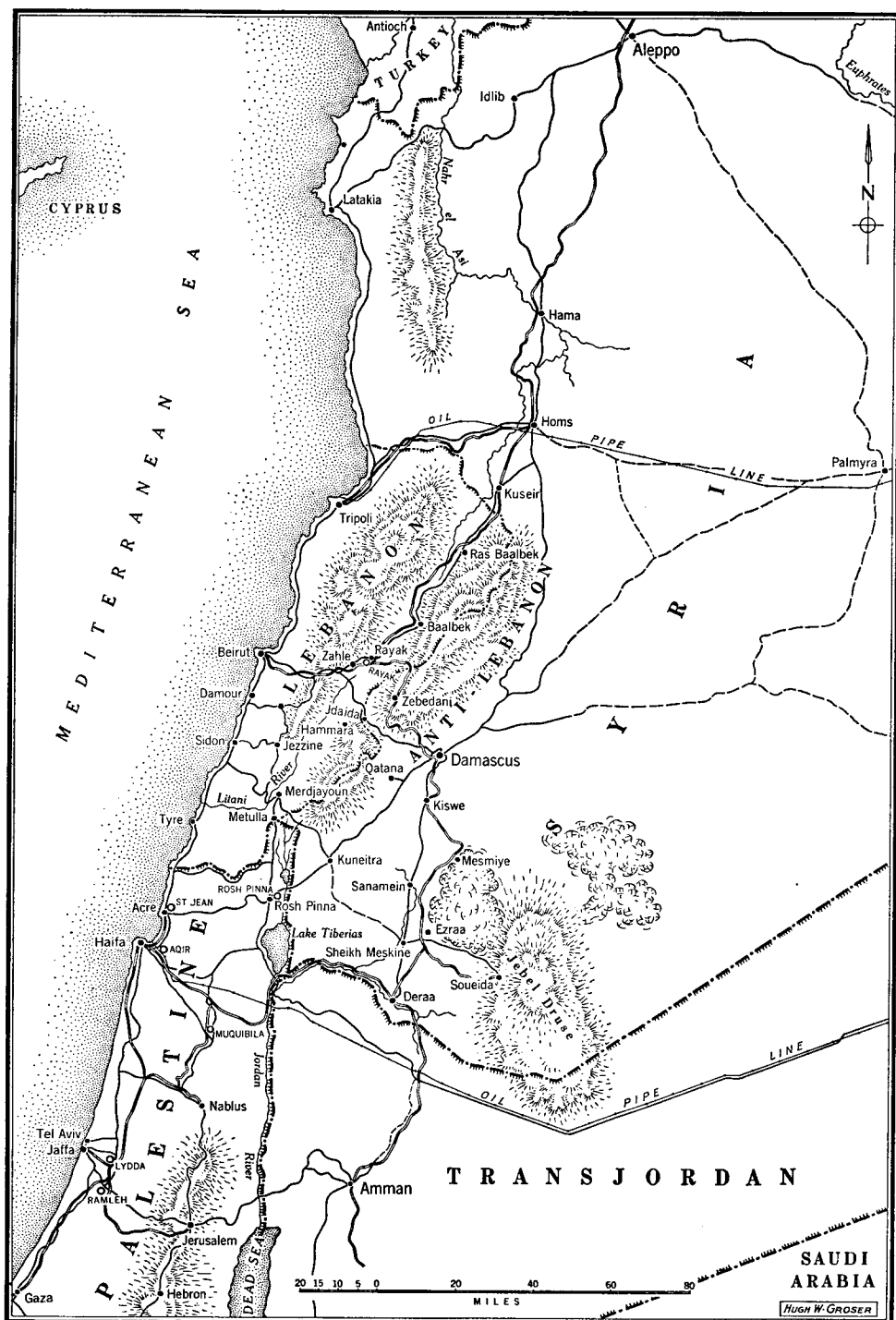
All of these tasks were to be achieved with a force of seventy aircraft so that at first it was impossible to decentralise or attach any units to military forces as was requested. However, air liaison officers were appointed to each of the two army headquarters to forward requests for specific air action to Brown who was anxious to provide air support where practicable and when resources permitted. Base facilities and flying conditions were infinitely better than those encountered in Greece and there was some confidence that all of the main tasks could be done by judicious juggling. Later, as will be seen, when reinforcements became available, a limited decentralisation was possible.

For No. 3 Squadron the Syrian campaign opened with an attack by five Tomahawks on Rayak satellite airfield at 6.15 a.m. on 8th June. The pilots found no French aircraft in the air, but shot up six Morane fighters on the ground. The same evening four Tomahawks escorted Blenheims attacking oil tanks at Beirut. Until the 21st the squadron was constantly switched from one pressing duty to another, according to priorities determined by Air Headquarters Palestine and Transjordan. During this period 199 sorties, an average of fifteen daily, were flown with varying emphasis on interception duties; naval patrols; tactical reconnaissance; strafing of enemy land forces; protective patrols over forward troops; bomber-escort duties and escort for reconnoitring Gladiators.

The task of defending their own air base and other possible targets in Palestine was a light one for the Australians because French air effort was consistently directed against army dispositions and naval units. Between 9th and 16th June only eleven sorties were flown to intercept aircraft reported over the Haifa-Tel Aviv area. There was practically no incident connected with these interception flights, because on some occasions the alleged raiders could not be found, on others the reported aircraft proved friendly, and on 10th June the hostile aircraft against which two Tomahawks were directed was shot down by ground fire before they themselves reached its position. Naval patrols were more frequent for it was early apparent that the Fulmars could not protect 15th Cruiser Squadron,⁷ and between 9th and 21st June the Australians flew sixty-two protective sorties.

On the 14th, when our naval units were off Tyre and Sidon to prevent French ships from bombarding the 21st Australian Brigade, eight Tomahawks on the afternoon patrol arrived just in time to find eight Ju-88's, with Italian markings, at 15,000 feet preparing to attack our ships. Led by Squadron Leader Jeffrey the Tomahawks attacked immediately and with success, Flight Lieutenant Perrin, Flying Officer Saunders and Jeffrey himself, each shooting down one bomber. Confidence in the Tomahawk,

⁷ 3 Fulmars were lost and 2 destroyers damaged during the first week.



sorely tried during the re-equipment period, was now fully restored,⁸ but no further chance came on these patrols over the 15th Cruiser Squadron to prove its worth in combat. On the 16th, Swordfish aircraft of the Fleet Air Arm, based in Cyprus, torpedoed and sank a large French destroyer, *Le Chevalier Paul*, off the Syrian coast, as the Frenchman, in company with another destroyer, was attempting to reach Beirut from the western Mediterranean.

In the initial stages of the land campaign objectives were quickly taken, but after a few days French resistance stiffened. The Australians were halted beyond Merdjayoun, and although Legentilhomme's division advanced as arranged from Deraa to within twelve miles of Damascus by 12th June, it could make no further progress in the face of determined Vichy counter-attacks supported by medium tanks. Accordingly as early as 10th June direct support from the R.A.F. was requested and during the following ten days No. 3 flew fifty-one sorties against Vichy motor transport and tanks. On the 11th, after scouting over Beirut harbour, seven Tomahawks attacked enemy concentrations confronting the right wing of the 7th Australian Division near Merdjayoun. The following day Legentilhomme's column was to have been aided by low-flying attacks on enemy forces between Sanamein and Mesmiye but unfortunately the three aircraft lost formation and the patrol was abandoned. On the 15th strong French counter-attacks opened at Merdjayoun, Kuneitra and later at Jezzine. A noon-reconnaissance patrol made that day by Australian Tomahawks discovered twelve tanks and thirty motor vehicles near Sheikh Meskine, and the same evening these were successfully attacked by seven aircraft, Jeffrey and Flying Officer Turnbull⁹ in addition each shooting down a Glenn Martin bomber. Targets in the Kuneitra area were attacked twice on 16th June and the following day, when Kuneitra itself was again in French hands, Tomahawks patrolled the roads leading into the town. The strain on fighter resources was, however, so great that only four aircraft could be spared for this duty although the French success threatened British lines of communication. The Indian brigade continued to attack at Damascus, however, and on 20th and 21st French forces retiring towards Beirut were harassed by the Tomahawks which damaged or set on fire many trucks and light fighting vehicles. On this occasion the Australian aircraft for the first time met resistance from the ground and three aircraft returned with slight damage from anti-aircraft fire.

Another result of French counter-attacks, which were made with air support, was the demand for protective patrols over our forward troops, but although forty-three sorties were flown over Legentilhomme's forces near Kiswe and the Australians in the Damour-Jezzine sector, no action resulted. Ground troops had great difficulty in distinguishing French aircraft from British because of a confusing similarity between their identification roundels. However, although the protective patrols were too light to

⁸ Jeffrey's combat report comments: "It appears that a Tomahawk can easily catch a Ju-88 and manoeuvre so as to make any attack desired by the pilot."

⁹ Sqn Ldr P. St G. Turnbull, DFC, 481. 3 and 75 Sqn; comd 76 Sqn 1942. Electrician; of Glen Innes, NSW; b. Armidale, NSW, 9 Feb 1917. Killed in action 27 Aug 1942.

prevent very determined French attacks, casualties in the sector were light.¹ Bomber-escort duties which accounted for twenty-seven sorties were also uneventful until the evening of 19th June, when, after bringing the Blenheims safely home, the Tomahawks dispersed eight Glenn Martin aircraft which were attempting to bomb Australian troops near Sidon.

The grim defence and determined counter-attacks of the French soon dashed any hopes of a solution by agreement and also exposed the faults of the plan to advance with three weak columns. Accordingly both reinforcements and reorganisation were deemed necessary to secure a speedy decision in Syria. One brigade of the 6th British Division and an artillery regiment became mobile and joined the invading force, which on 18th June was placed under the command of I Australian Corps (Lieut-General Lavarack²). Three days later an independent force ("Habforce") began to move from Iraq against Palmyra. Air reinforcements included No. 45 (Blenheim) Squadron and No. 260/450 (Hurricane) Squadron³ and this at last permitted a limited decentralisation of the air squadrons, No. 208 Squadron and "X" Flight being allocated to Habforce and No. 3 Squadron to I Australian Corps after the fall of Damascus on 21st June.

The revised army plan was to capture Beirut by an outflanking move, but Vichy resistance remained stubborn both west of Damascus and farther south in the Jebel Druse and Merdjayoun areas. Wellingtons from the Canal zone began on 23rd June to increase the air pressure on Syria, and No. 3, although now freed from naval patrols and the air defence of Palestine, still had a variety of tasks under I Australian Corps. Four attacks involving twenty-five sorties were made against tactical targets, one on 22nd June against Vichy transport south of Jdaida and the others, after an interval of other pressing duties, early in July in the Rayak area. The policy of strafing French airfields was also resumed with great success, and although the Australians were not always available for these duties, forty-two such sorties were flown and the squadron destroyed seven aircraft and damaged thirteen on various days. Airfield defences were poor and the Tomahawks had complete freedom of action. In one particularly damaging attack on Kuseir on 29th June, a hangar was set ablaze, a petrol and an ammunition dump destroyed and many trucks damaged, while

¹ Unit histories of Australian formations engaged in this campaign say relatively little about air matters, and only annoying enemy attacks are cited. Typical instances are: W. B. Russell, *The Second Fourteenth Battalion* (1948), pp. 57-8: "D Company was moved forward to the Merdjayoun road which had been reached earlier by one section of 16 Platoon. On the way the company was very heavily strafed by enemy aircraft but was sheltered by terraces and a dry creek bed . . . the enemy continued bombing and strafing by day and night, but Pte Clarrie Smith . . . was the only casualty." R. L. Henry, *The Story of the 2/4th Field Regiment* (1950), p. 126: "All gun positions of both batteries during the 13th of June were subjected to heavy bombing and strafing attacks. Some Troop positions received as many as five bombings. The roads were strafed by enemy fighters and the Navy received sticks of bombs on several occasions. Altogether it was a hectic day for everybody. Few escaped these experiences. Slit trenches were dug earnestly by all and the value of their protection was learned fully. Despite all the metal dropped and shot at the gun positions and along the road only three casualties occurred. Some Troop positions looked like ploughed fields after bombing attacks."

² Lt-Gen Sir John Lavarack, KBE, CB, CMG, DSO. (1914-18: Brit Army and AIF.) GOC S CD 1939-40, 7 Div AIF 1940-41, I Aust Corps 1941-42, First Aust Army 1942-44; Head Aust Military Mission Washington 1944-46. Governor of Qld since 1946. Regular soldier; of Melbourne; b. Brisbane, 19 Dec 1885.

³ Formed by wedding the aircraft and pilots of 260 Sqn RAF, newly arrived from U.K. without its ground organisation, to 450 Sqn RAAF which had no pilots.

Flying Officer Knowles⁴ also shot down a Glenn Martin encountered en route. Six Tomahawks also on 2nd July attacked and sank two Loire flying-boats in Tripoli harbour. The Blenheims were escorted on six raids (involving seventy-seven sorties), two of which on 28th and 29th June were to aid Habforce which was making very slow progress in its advance on Palmyra. On each occasion the Tomahawks flew first to Damascus, refuelled and then flew on with the Blenheims to Palmyra. On the 28th, after the bombing was completed, the nine escorting Tomahawks patrolled east of Palmyra and encountered six Glenn Martins attacking Habforce units. Battle was joined and all six bombers were shot down, Flight Lieutenant Rawlinson destroying three, Flying Officer Turnbull two and Sergeant Wilson⁵ the remaining one. Two of the four offensive patrols undertaken during this period by No. 3 had also been in support of Habforce on the 25th and 26th, and, on the first of these, eight Tomahawks had little difficulty in shooting down three of four Potez 63 aircraft found fifteen miles south-west of Palmyra. No opposition was encountered on the other patrols, although it was against this ground force that the French made their most persistent and successful air attacks.

On 1st July one brigade of the 10th Indian Division also began to move from Iraq up the Euphrates River towards Aleppo. Habforce captured Palmyra on the 3rd after a bitter defence by a small French group which held out against four regiments, and, while Legentilhomme moved against Homs, and a brigade of the 6th British Division towards Rayak, the 7th Australian Division reinforced by battalions of the 6th Australian Division prepared to assault Damour and Beirut. French hopes were now centred on the arrival of reinforcements by sea,⁶ and all available bomber and torpedo aircraft in Palestine and Transjordan Command stood by from the beginning of July to attack any Vichy convoy. When eventually the attempt was made, naval Swordfish from Cyprus sank one troopship, and the others turned back. This could not, however, be foreseen and early in July, despite the loss of Palmyra, the French seemed determined to fight on. A conference on 4th July to re-arrange air support for the army transferred No. 3 and a newly-arrived Blenheim squadron (No. 45 R.A.F.) to operate under the control of the 7th Australian Division during the battle for Damour which opened on 6th July. No. 3 remained at Rosh Pinna and No. 45 at Muquibila, respectively forty and seventy-five miles from the Australian divisional headquarters at Sidon. This occasioned some difficulty in coordinating actual flying with army requirements. Personal contact between the three headquarters was impossible and direct landline communication could be effected only between the airfields and corps headquarters and thence to divisional headquarters via the general operational line. Traffic congestion between corps and division

⁴ F-Lt L. E. S. Knowles, 456; 3 Sqn. Regular air force off; of Canberra; b. Hawthorn, Vic, 18 Aug 1917. Killed in action 22 Nov 1941.

⁵ Sgt R. K. Wilson, DFM, 407088; 3 Sqn. Clerk; of Glen Osmond, SA; b. Dulwich, SA, 11 Sep 1919. Killed in action 9 Dec 1941.

⁶ Turkish permission for the passage of French troops through Turkey to Syria had been refused on 1 Jul.

caused such frequent delays that special wireless-telegraphy links were provided between divisional headquarters and squadrons, and between divisional headquarters and the air liaison officers with the forward brigades. Despite these measures delays continued, although communications did improve after 8th July. Another weakness in these arrangements for close air support lay in the absence of targets really suitable for the aircraft available. The terrain in which the Vichy forces were entrenched provided excellent cover and adequate dispersal areas. Road movement was rare except by night, and as the enemy was falling back steadily towards supply bases, he required few road convoys.

The principal employment of No. 3 during this culminating phase of the Syrian campaign was to escort the Blenheims of No. 45. Cloud frequently hampered operations and on the 6th caused one raid to be cancelled as the fighters could not find the bombers at the appointed rendezvous. A total of forty-six sorties was flown without incident until the 10th, when en route to Hammara, five Dewoitine fighters attacking from below shot down three Blenheims before the seven escorting Tomahawks could intervene. The Australians then dived and all five Dewoitines were destroyed, two by Turnbull and one each by Flying Officer Jackson,⁷ Pilot Officer Lane⁸ and Sergeant Hiller.⁹ This unfortunate incident, the first occasion on which a bomber had been lost while escorted by No. 3, was due largely to the nature of the country, mountainous and split by deep gorges, against which background it was difficult to see even the Blenheims.

During the same period fifty-one sorties were flown to attack traffic on the roads leading to the Vichy positions and on 11th July No. 3 joined with No. 260/450 Squadron in an attack on airfields in the Aleppo-Hama area. On this the last day of the campaign the squadron suffered its first loss in combat, Flying Officer Fischer¹ being shot down by a Dewoitine which was itself promptly destroyed by Flying Officer Gibbes.² Fischer managed to crash-land unhurt, hid in an Arab village and subsequently returned to the unit.

Although all operations in Syria were suspended soon after midnight on 11th-12th July, squadrons remained at immediate readiness until the 14th in case negotiations with the Vichy authorities should break down. By comparison with past campaigns and others yet to come, the fighting in Syria was of minor importance, but it had special interest in that not only were Australian army, air and naval units engaged, but, as in Greece, an Australian commander and staff directed the main operations; and in the principal attempt at air cooperation, No. 3 Squadron and the

⁷ Sqn Ldr J. F. Jackson, DFC, 493. 3 and 4 Sqns, comd 75 Sqn 1942. Grazier; of St George, Qld; b. Brisbane, 23 Feb 1908. Killed in action 28 Apr 1942. Jackson's Strip at Port Moresby was named after him.

⁸ F-O E. H. Lane, 406002; 3 Sqn. Engineering cadet; of Yallingup, WA; b. Busselton, WA, 9 Jan 1919. Killed in action 22 Nov 1941.

⁹ Sgt G. E. Hiller, 407075; 3 Sqn. Clerk; of Glenelg, SA; b. Glenelg, 27 Feb 1916. Died of wounds POW 2 Dec 1941.

¹ Sqn Ldr F. Fischer, DFC, 250626; 3 Sqn. Student civil pilot; of Melbourne; b. South Yarra, Vic, 1 Feb 1920.

² W Cdr R. H. M. Gibbes, DSO, DFC, 260714. 450 Sqn; comd 3 Sqn 1942-43, 80 Wing 1944-45. Salesman; of Manly, NSW; b. Balgowlah, NSW, 6 May 1916.

7th Australian Division were intimately concerned. From an air viewpoint the outstanding success was the use of fighter planes to destroy aircraft on the ground; this compelled the enemy to retire to rear airfields. This neutralisation of enemy airfields proved of much greater help in diminishing the scale of French air attack than protective patrols to the front-line troops,³ and together with lessons learned from the attempts at close support during the last week of the campaign, was to become the basis for future air tactics.

In the meantime No. 3 moved on the 20th to assist in the defence of Beirut and to give additional cover to Cyprus where an advanced landing ground was prepared. The German Air Force, however, although possessing adequate bases in Crete and the Dodecanese Islands, made little attempt at offensive action in the Levant, and for the Australians the last half of July passed uneventfully. No operational flying was recorded by the squadron during August, although three precautionary flights were made to show the flag over Arab villages evincing signs of unrest. This lull in combat duties permitted practically everyone to take a few days leave, but intensive flying training was also given to new pilots. Many of the experienced personnel, notably Perrin, returned to Australia or were withdrawn for other duties, and the replacement pilots obtained either from Australia or the Middle East Pool had not been to operational training units. No. 3 Squadron was then ordered to return to the Western Desert, and leaving Rayak on 3rd September, moved first to Amiriya and then to Sidi Haneish where it was ready to resume operations on 13th September. The composite No. 260/450 Squadron had gone to Haifa to undertake static-defence duties following the stand-down on 14th July, but flew only eleven uneventful interception sorties during July.⁴ On 10th August the R.A.F. ground complement for No. 260 reached Haifa and five days later No. 450 moved to Rayak to sort captured French equipment. This task ended on 13th September and the Australian ground crews then stood by hoping that at last pilots would be available to enable the squadron to begin operating. A few weeks later, however, on 3rd October the squadron was detailed as a temporary Hurricane operational training unit to train pilots for Palestine and Transjordan Command, but although this activity commenced on the 11th, it had short duration, for after only eight days, the Australian ground crews were posted to Burg el Arab to be employed on maintenance duties. The only pilot on strength even at this late date was Steege temporarily attached from No. 3 as commanding officer.

³ The Australian sectors were relatively free from air attack after airfield raids were resumed. The French could still, however, strike at Habforce. There were never sufficient fighters available for continuous defensive patrols and it was quite coincidental when one of the many small-scale French raids was intercepted.

⁴ This sqn operated for 10 days only and flew 61 sorties against airfields, 20 on offensive patrols over Palmyra, 30 on naval patrols and 6 on bomber-escort duties during the Syrian campaign. Effort was chiefly against the more remote French airfields and normal procedure was to fly to Damascus, refuel, attack the objective and return either to Damascus or to base. On one occasion (9 Jul) the aircraft flew first to Damascus and then to Palmyra before setting out on the patrol proper.

The misfortunes of No. 450, which had been in the Middle East since May and was not to become fully operational until February 1942, upset the planned development of R.A.A.F. strength in that theatre. It was not simply a lack of Australian pilots, who were indeed concurrently serving in considerable numbers on R.A.F. squadrons, which caused this setback, nor any lack of cooperation on the part of R.A.F. authorities. The main difficulty arose through the interaction of the serious military position in the Middle East with the determined policy of the Australian Air Board to keep apart, for reasons which will be given below, personnel of its permanent air force and those airmen trained under the Empire Air Scheme. Negotiations for the dispatch of more R.A.A.F. squadrons to the Middle East had begun in November 1940 when, in consultation with General Blamey, Air Marshal Longmore suggested to Air Marshal Sir Charles Burnett that a second army-cooperation squadron should be sent.⁵ Late in January 1941 the Air Board accordingly offered to form an army-cooperation squadron under the provisions of *Article XV* of the Ottawa Agreement, and Air Ministry gladly accepted. When the Air Officer Commanding-in-Chief Middle East was informed he suggested that each flight of the new squadron should first be attached to No. 3 in the field; his main problem in creating new squadrons was the lack of operational training facilities due to a shortage of service-type aircraft. Earlier in January 1941 the Air Ministry had already suggested the formation of a R.A.A.F. fighter squadron by the linking of R.A.A.F. pilots to experienced ground staffs of No. 91 Squadron R.A.F. then on their way to the Middle East—the resultant squadron to be known as No. 450 Squadron R.A.A.F. Some confusion was caused in these three-cornered negotiations between the Air Board, the Air Officer Commanding-in-Chief Middle East, and the Air Ministry because the terms “army cooperation” and “fighter” were used to describe the same type of squadron,⁶ and before repeated signals had established clearly that two and not one R.A.A.F. squadrons were proposed, the chance to form one immediately with the ground staffs of No. 91 had gone. The Air Board, however, was willing to send ground staffs for both Nos. 450 and 451 to the Middle East and requested accommodation on the first practicable convoy. These men finally left Sydney on 9th April, and arrived in Egypt on 3rd May, the necessary aircraft and equipment promised by the United Kingdom to await them. It was unfortunate that they arrived in the Middle East at a time of such great difficulty with Libya and Greece lost, Crete threatened, and every experienced squadron desperately short of aircraft to continue the battle. Equipment could only be given to squadrons capable of operating immediately and this the two new Australian formations, numerically intact but composed entirely of tradesmen experienced only on training airframes and engines, were manifestly unable to do.

⁵ At this time 3 Sqn RAAF was an “army-cooperation sqn”.

⁶ “I call it an army-cooperation squadron,” wrote Longmore to Burnett, “but what I really want is a squadron of close-support fighters.”

With No. 3 withdrawn for re-equipping it would have been possible by stiffening the new units with experienced key personnel from that squadron to have brought them all to battle-worthy condition with little delay, and this was the declared intention of Air Marshal Longmore and his successor as Air Officer Commanding-in-Chief Middle East, Air Marshal Tedder.⁷ The Australian Air Board's ruling, however, that there must be no inter-postings between Home Defence and *Article XV* squadrons, except as a temporary measure,⁸ made this impossible, and Headquarters R.A.F. in the Middle East, hard pressed both for resources and time, inevitably had to maintain experienced squadrons rather than develop two units whose members, excellent material though they were, were almost entirely non-regular, had only just completed initial training, and had never seen a Hurricane engine.

On 13th June Tedder explained his difficulties in a cable to the Air Ministry:

Complete segregation of No. 3 RAAF and 450 and 451 squadrons present insuperable difficulties. Personnel came without General Duties officers and we must provide leavening experienced officers. Have been instructed further by Air Board, Melbourne, to post surplus other ranks personnel from No. 3 RAAF to 450 and 451. As stated in my (previous signal) unable to form these units as squadrons in immediate future and am using them to supplement depots. Flight Lieutenant Steege from No. 3 RAAF already posted to command 450. 451 still in abeyance. No flight commanders yet appointed owing to extent which Command below establishment in trained pilots

and on the following day came a statement of policy from the Australian Air Board:

Apparently a misunderstanding exists regarding posting of 3 Squadron personnel from that Squadron to fill vacancies in your Command.

Subject always repeat always to the immediate operational requirements which may necessitate a temporary attachment of personnel from one unit to another our policy is to keep units of Australia's permanent Air Force up to strength from Australia mainly to allow of exchange and promotion within the home defence units and E.A.T.S. establishments remaining in Australia. There is no means other than by exchanges with R.A.F. personnel by which we can give Australians here any chance of getting war experience which is essential to this force. Exchange with R.A.F. is difficult and takes time. Number 3 Squadron is a unit of Australia's permanent Air Force serving in the Middle East and while we have no objection in emergency to you attaching personnel from this squadron to other units as a temporary measure it must be understood that such attachments cannot continue indefinitely and personnel should return to No. 3 Squadron or to Australia as soon as the situation will permit. This policy is applied to such officers and other ranks as otherwise we are faced with large numbers of very efficient personnel who will be forced to remain here for the duration of the war or at best until we have a surplus of personnel Australia which we cannot foresee until next year. Postings between R.A.F. and E.A.T.S. Australian units is a matter for you and is no concern of ours other than that Australians should be employed when possible in accordance with the arrangements reached between U.K. and Australian Governments under

⁷ Marshal of RAF Lord Tedder, GCB. Dep AOC-in-C RAF ME 1940-41; AOC-in-C RAF ME 1941-43; Air C-in-C Medit Air Cd, 1943; Dep Supreme Cdr, Europe, 1944-45. Regular air force off; of London; b. Glenguin, Stirling, Scot, 11 Jul 1890.

⁸ On 12 Mar Air Board advised RAAF Liaison Office London that "although infiltration sqns are in name Australian, there will be no inter-posting between these sqns and regular RAAF sqns except as a temporary measure".

the E.A.T.S. agreement to implement the clause in that agreement which requires that Dominion personnel serving with the R.A.F. will be identified by forming where possible units consisting of 100 per cent Dominion personnel. Air Ministry is however not forced to appoint officers of Australian origin to command or otherwise serve in R.A.A.F. E.A.T.S. Squadrons if Australians with suitable experience are not available for these appointments. It is realised that in the early stages of formation of units sufficient experienced Australians are unlikely to be available. If our policy is not clear to you or if any part of this signal is not understood please signal me urgently.

A week later, Tedder replied that the Air Board's policy was now understood and that he would endeavour to maintain it in principle. He also explained the use he had made of the surplus personnel of No. 3 and sought permission to employ pilots of No. 3 outside the Australian squadron, justifying his request by instancing the help given by the R.A.F. to keep No. 3 up to strength:

3 Squadron has no personnel surplus to establishment except photographers and wireless operators. With regard to pilots, 3 Squadron has only 14 effective pilots posted by you as against establishment of 26 with 10 reserves. In past R.A.F. and S.A.A.F. pilots have been posted to keep 3 Squadron at reasonable operational strength as replacements from Australia are always delayed. 11 Australian E.A.T.S. now in 3 Squadron. There are 8 other R.A.A.F. pilots posted to 3 Squadron by you in this Command including W Cdr McLachlan who is too senior and is acting as Australian Liaison Officer. 5 pilots are operationally tired, 3 of these being returned to Australia and intended to rest 2 as C.O.'s 450 and 451 Squadrons. 2 pilots are medically unfit for over 3 months. Surplus senior N.C.Os from No. 3 Squadron are being exchanged with A.Cs of No. 450 and 451 Squadrons. As these squadrons deficient senior N.C.Os and such exchange will introduce new blood into 3 Squadron. It is not considered good policy for disciplinary purposes to have large body of Australians serving under English N.C.Os.⁹ Urge no objection to using few R.A.A.F. pilots outside 3 Squadron when we are forced to provide large numbers to keep 3 Squadron operational strength. Cannot return personnel held against 3 Squadron establishment to Australia until replacements personnel arrive here.

A further exposition of the Air Board's policy followed on 30th June.

Subject always to operational requirements surplus photographic personnel and wireless operators in number 3 Squadron R.A.A.F. should be returned Australia. If wireless operators must be retained to meet your operational requirements they may be retained as a temporary measure and they should be attached to Air Headquarters Middle East for employment as required not repeat not posted and should remain on strength of number 3 Squadron R.A.A.F. Regarding pilots for number 3 Squadron R.A.A.F. you have seventeen R.A.A.F. pilots, excluding McLachlan, Steege, Pelly, East,¹ Boyd and Bracegirdle,² and six pilot reinforce-

⁹ It is interesting to note that early in November 1940 Sqn Ldr McLachlan of 3 Sqn sought full powers of a commanding officer "on the grounds that Australian airmen were likely to feel resentment if punished by an officer of another service". HQ RAF ME on 11 Nov passed this request to the Air Ministry. The Air Board, however, when consulted ruled that the *Visiting Forces Act* and *King's Regulations* adequately covered the situation, and the request was refused.

Partly from a reputation gained in the previous war and partly because of their somewhat independent attitude, Australians were frequently regarded as not amenable to the finer points of discipline. There were inevitably minor troubles but on the whole the fears implicit in Tedder's signal were never realised. Under good NCOs or offrs of any nationality Australians worked well and hard; restiveness appeared only in slack periods or when control itself was faulty.

¹ Sqn Ldr V. East, AFC, 572. 3 Sqn, 1 Rescue and Commn Sqn. Student; of East Fremantle, WA; b. Perth, WA, 9 Aug 1918.

² Sqn Ldr B. L. Bracegirdle, 484. 3, 4 and 75 Sqn; comd 4 Fighter Sector HQ 1943; 11 and 42 Sqn; comd Air Defence HQ Darwin 1945. Regular air force offr; of Canberra; b. Melbourne, 25 Sep 1918.

ments are now en route. Consequent upon changes in number 3 Squadron R.A.A.F. establishment you absorbed reinforcement pool therefore we will send fifteen further pilots to complete present establishment and pool.³ Australian Empire Air Scheme pilots sent to you in accordance with the Empire Air Scheme agreement should not repeat not be employed in No. 3 Squadron R.A.A.F. except as temporary measure and if so employed should be attached to No. 3 Squadron R.A.A.F. not repeat not posted as they belong to R.A.F. As regards surplus N.C.Os No. 3 Squadron R.A.A.F. these should be returned to Australia subject again to your operational requirements. If however these surplus N.C.Os have to be employed in 450 or 451 Squadrons they should be attached and returned to Australia as soon as airmen of those squadrons are suitable for promotion. If for any reason R.A.A.F. ground personnel sent to you for Empire Air Scheme Squadrons such as 450 and 451 have to be employed in No. 3 Squadron R.A.A.F. they should be attached as a temporary measure pending the arrival of ground personnel from Australia to fill No. 3 Squadron's establishment. Such ground personnel will be sent as soon as possible embarking about late July.

More cables passed between the Middle East and Australia during July but none solved the basic difficulty that until a proportion of fully-experienced fighter pilots and technical tradesmen were available it was militarily unsound to allocate any of the all-too-few fighter aircraft to No. 450 in order to give it operational status. The ground crews of this unit continued to gain experience on modern aircraft by employment at various aircraft depots.

Tedder had already on 25th June attempted to bring No. 451 into action by emergency means. Flight Lieutenant Pelly was ordered to take his ground staffs, hitherto employed at No. 103 Maintenance Unit, forward to Qasaba to take over the Hurricanes, transport and equipment of No. 6 (Army Cooperation) Squadron R.A.F. Pelly himself was due to return to

* The Air Board was perplexed and at a great disadvantage because of the rapidity with which the establishment (i.e. the calculated optimum strength in all categories of personnel and types of equipment) of sqns were changed according to the rapidly shifting needs of war. Remote from the scene Air Board found it impossible to forecast requirements in advance and difficult to supply men suddenly required by such changes.

The establishment problems of 3 Sqn, perhaps, were larger than those of the average sqn. When first the possibility of an army-cooperation sqn going overseas was raised in Nov 1939, the Air Board applied itself to Establishment ME/809 which called for 20 officers, 205 airmen plus locally recruited labour. When 3 Sqn actually sailed in Jul 1940 the revised war needs of a Lysander sqn were 24 officers and 268 airmen (War/ME/115) and it was fully up to strength. As No. 3 never operated with Lysanders it shed some personnel and the Air Board on 17 Jan 1941 agreed that it should conform to War/ME/153 suitable for a Gladiator sqn. At the same time the reinforcement pool of pilots to offset losses was increased to a strength of ten. The Air Board began to prepare No. 450 to conform with War/ME/123a (normal Hurricane-fighter sqn) and No. 451 to War/ME/153, but on 7 Mar HQ RAF ME equipped No. 3 with Hurricanes and requested that it work to War/ME/123a which called for a considerable increase in pilots. The question then arose in London whether all three Australian sqns should be working to War/ME/123a but McNamara (RAAF Liaison Offr) was somewhat nonplussed when Air Marshal Hollinghurst, Director of Organisation, Air Ministry, ruled on 15 Mar that Nos. 3 and 451 as A.C. sqns should really be equipped according to War/ME/177. On 4 Apr HQ RAF ME formally requested that all three R.A.A.F. sqns conform to War/ME/123a.

In all this (and there were other changes later) there was ample scope for misunderstanding. The related topic of the pilots reinforcement pool provided more. When No. 3 converted to Hurricanes it virtually incorporated all pilots then in the Middle East. McNamara asked the Air Ministry for its future requirements. The Director of Personnel, Air Ministry, unaware of any difference between permanent R.A.A.F. and E.A.T.S. pilots advised that so long as the existing monthly allocation of 30 pilots, 30 observers and 45 WT/AG from Australia to the Middle East continued, no difficulty was seen in getting pilots for all three Australian sqns. Even though this allocation was due to end in Jul 1941, it was expected that the output of E.A.T.S. schools in Rhodesia would supply sufficient R.A.A.F. pilots. No request was made therefore for the reinforcement pool for No. 3 to be replenished. Neither McNamara nor the Air Board at this stage questioned the basis on which this calculation was made by the Air Ministry.

All parties were obviously working in good faith and trying to meet each other's needs, but there appears to be a distinct gap in awareness of what those needs really were.

Australia and immediately handed over command to Squadron Leader Pope.⁴ Hence the squadron's career began with inexperienced ground crews,⁵ poor equipment⁶ and a motley collection of pilots assembled from various parts of the command, many of whom proved completely unsuitable for army-cooperation duties.⁷ At first only one pilot was an Australian, but four more arrived on 11th July and slowly the proportion of Australians increased. This unit, whose members had no squadron, desert or operational experience, went straight into No. 253 Wing to provide together with one fighter (No. 229 R.A.F.) and one light-bomber squadron (No. 113 R.A.F.),⁸ the total needs of Western Desert Force in air support. An exercise on 11th to 12th July showed that No. 253 Wing was still very inexperienced and a large training program was instituted to overcome the generally inadequate state of air-to-ground cooperation.⁹

Between 15th July and 15th August No. 451 flew seventeen practice tactical reconnaissances, four practice photographic sorties, thirty-two sorties on dummy artillery shoots and twelve on live shoots. The problem of recognition from the air of land forces was explored, and courses in radio-telephone, clock-code observation and ground-signals code were begun by the squadron with ground operators from Australian, Polish and Indian artillery units. Two series of live shoots with batteries of the 9th Australian Division showed that Hurricanes with radio-telephones could be used effectively for artillery cooperation (Arty/R).

The general lines upon which army-cooperation squadrons should work was given much thought in mid-1941. Tedder ruled that consequent on the arrival of German fighter aircraft of superior performance in the

⁴ Gp Capt V. A. Pope, DSO, 37071 RAF, 208 Sqn RAF; comd RAF Stn Haifa 1940-41, 451 Sqn 1941, 231 Sqn RAF 1942-43, 644 Sqn RAF 1944, RAF Stn Rivenhall 1944-45, 906 Wing RAF 1945. Regular air force offr; b. Newcastle-on-Tyne, Eng, 26 Jul 1912.

⁵ There was at this time in the sqn only one w-o; one f-sgt on loan from No. 3; 8 sgts, of whom 6 were from No. 3; and 28 cpls, of whom 4 were from No. 3. The senior airman in each flight was a cpl. Workshops were in charge of a sgt. There was no engineer offr, nor w-o, nor even a f-sgt.

⁶ For one month there were insufficient parachutes for all pilots; for two months insufficient flying clothing and life-saving waistcoats. Oxygen supplies were very low.

⁷ Of 45 pilots posted to 451 Sqn before Oct 1941, no fewer than 14 were reposted as quite unsuitable, another 10 left the squadron for various reasons and 9 had not yet arrived. Pope himself had not flown a Hurricane before he joined the squadron.

⁸ Replaced on 18 Aug by 24 Sqn SAAF.

⁹ One Australian offr, Capt J. W. London AIF was serving with 200 Air Intelligence Liaison (AIL) Section, British Army, which was attached to 451 Sqn.

It is interesting to note that I Aust Corps AIL Section was at this time still serving with 3 Sqn and continued to do so until recalled to Australia in Jan 1942. This section had been formed as part of the Intell Corps early in 1940 with an establishment of 2 offrs and 6 ORs. After experience with 6 Sqn RAF in Palestine the section joined No. 3 when it was established at Helwan during Sep 1940. At McLachlan's request all his pilots were given thorough army-cooperation training which included not only practical exercises with 6 Aust Div but also written examinations; at that time importance was placed on a thorough knowledge of army terminology and proficiency in Morse code, then the most reliable means of maintaining ground/air communications.

During Wavell's first campaign the section was placed under HQ Western Desert Force and worked conjointly with the G (Air) Staff of that HQ and HQ XIII Corps. Liaison was maintained with 4 Indian Div and at one period an Australian offr was also attached to HQ 7 Armoured Div. When 19 Aust Inf Brigade arrived in the desert the section was linked by land line to the forward companies of 2/11 Aust Inf Bn.

As No. 3 progressively changed its role from full army-cooperation to fighter duties, the section was concerned almost entirely with Tac-R but accompanied the sqn to Benina and even briefed from the ALG at El Aghella.

After the first withdrawal in Libya the section accompanied 3 Sqn to Palestine and worked with No. 3 throughout the Syrian campaign, also briefing RAF light-bomber sqns both for direct and indirect support.

Western Desert there must be husbanding of resources during periods when the land battle was static. Individual aircraft must no longer carry out lengthy tactical reconnaissances, and such tasks would only be done under cover of adequate fighter protection. The operations of No. 451 conformed almost completely to these principles and between 1st July and 14th October only 372 sorties were flown—divided by task into 253 tactical-reconnaissance, 115 photographic-reconnaissance and 4 artillery-cooperation flights. Naturally during the first month aircraft were rarely sent beyond the enemy lines, but in August, as casualties had been negligible and photographs were required of enemy dispositions around Tobruk, the Hurricanes began to penetrate more deeply into Cyrenaica. Pope inaugurated these Tobruk flights on 9th August when he made an intensive reconnaissance of the eastern and western perimeter sectors, and fifteen similar sorties were completed successfully before the end of the month, each time strong escorts of fighters being provided. Photographs taken during these flights were immediately taken to Bagush (H.Q. Desforce), developed, and then flown back to Tobruk by squadron aircraft to be dropped on the landing ground there after a slow approach from the sea at 1,000 feet with wheels down so that the friendly nature of the visit would be evident.

The success of these Tobruk sorties led on 13th September to a proposal that two Hurricanes should proceed to Tobruk on attachment¹ while the main squadron party continued to operate as before until the siege was raised. Increasing operations on short-range reconnaissances which were authorised to be conducted by pairs of aircraft (one to watch and one to ward) brought a number of casualties at this time, mainly due to the reinforcement of eastern Cyrenaica with enemy fighters to support an enemy thrust timed for mid-September. On 3rd September one pilot was lost over Salum after his companion had engaged three Me-110's but had been forced to break away when his guns jammed. Ten days later an aircraft which set off alone, failed to return and on the 14th Pilot Officer Hutley² and Sergeant Rowlands³ were attacked by six Me-109's. Hutley crash-landed safely with wheels up and was rescued by an armoured patrol, and Rowlands was forced down to ground level and chased most of the way home by the enemy aircraft, finally landing safely at Bir el Thalata severely wounded in the legs. Two aircraft were lost over Bardia on 27th September, and a further one in unknown circumstances on 10th October.

The increasing efficiency of No. 451 was shown, however, on 11th September when aircraft on the Tobruk reconnaissance reported an

¹ The author has found no proof at sqn, wing, gp or cd level, nor in the records of AIL0 Tobruk, nor fortnightly operational summaries, that this transfer ever took place. It was clearly projected, however, because 451 Sqn ORB, although it is a poorly compiled and incomplete document at this period, definitely records that two aircraft were "instructed to proceed to Tobruk on attachment", and names the pilots. These two men were certainly to make a reconnaissance that day; one was delayed and the other set out alone but was shot down. It is possible that this caused a cancellation of the plan.

² F-Lt W. D. Hutley, 402358. 3 and 451 Sqn. Bank clerk; of Gordon, NSW; b. Semaphore, SA, 2 Oct 1915.

³ F-Lt H. R. Rowlands, DFC, 402404. 451 Sqn, 213 Sqn RAF. Clerk; of Rockdale, NSW; b. Cwmcar, S Wales, 2 May 1921. Killed in aircraft accident, 25 Mar 1944.

unusual concentration of enemy tanks and armoured vehicles near Acroma. Rommel's supply position had eased following the arrival of a convoy at Tripoli and the completion of a road by-passing the Tobruk perimeter, so this concentration was thought to herald some forward thrust. Two photographic sorties the next day confirmed the visual report and on the 13th fourteen more reconnaissance sorties revealed further increases in the enemy force which duly moved east the following day in two strong columns. Our own light forces on the Libyan frontier were withdrawn while No. 451 flew sixteen sorties to present hourly information of enemy progress. By nightfall the Germans reached Rabia and seemed to threaten Sidi Barrani, but almost immediately began to retire to their original positions again closely watched by pilots of No. 451, then the only army-cooperation squadron in this forward area. In all, fifty tactical reconnaissances devoted to this incident were flown after the first sighting on 11th September.

The ground crews of No. 1 Air Ambulance Unit R.A.A.F. proceeded to the Middle East with those of the two *Article XV* squadrons and they too experienced early difficulties. The ambulance unit had begun to form in February 1941 as an integral part of the home defence force, but designed to operate closely with the Australian Imperial Force on active service. Although two of the three DH-86's with which the unit was equipped left Laverton, Victoria, on 30th April, they did not reach Helio-polis in Egypt until 3rd July because of constant maintenance trouble en route. After overhaul Flight Lieutenant MacDonald⁴ flew one DH-86 to Gaza on 29th July to open the unit's first base in close proximity to the 1st Australian General Hospital. No spare parts had been sent from Australia, and although the Deputy Director of Medical Services of I Australian Corps wished MacDonald to evacuate patients from Syria it was impossible to keep the aircraft serviceable; and even when the second DH-86 reached Gaza on 9th September little effective work was done. Fortunately No. 206 (Maintenance) Group R.A.F. was able to procure essential items, and repeated appeals through the R.A.A.F. Liaison Office, London, finally resulted in two cases of spare parts being dispatched from Australia late in September 1941. Early in October, the unit transferred to the Western Desert, where it was reinforced by a third DH-86 flown from Australia and by the attachment of a South African Air Force Lode-star.

Thus of the three new R.A.A.F. units sent to the Middle East during the spring of 1941 only one had become fully effective by October, and even No. 451 was still far from being wholly Australian. At the same time, however, a considerable number of R.A.A.F. individuals had arrived on R.A.F. squadrons in the same area. Some, principally crews for Wellington aircraft of squadrons on No. 257 Wing, came from operational training units in the United Kingdom but many came direct from Aus-

⁴ Sqn Ldr J. G. MacDonald, AFC, 270292. Comd 1 AAU 1941, 2 AAU and 4 Commn Flight 1942, 4 OTU 1945. Commercial pilot; of Stawell, Vic; b. Ballarat, Vic, 14 Sep 1915.

tralian service flying training schools under an agreement to provide 30 pilots, 30 observers and 45 wireless-operator air gunners monthly for the Middle East aircrew pool. Arriving at a time of crisis many of these relatively untrained men were on active operations as early as April 1941, gaining their experience in the hardest of all schools. About fifty Australians were distributed among four Wellington squadrons by the end of May and their number increased during the following months: fifteen had joined No. 39 Squadron R.A.F. (Marylands), and slightly smaller numbers appeared on all the Blenheim squadrons. Fighter pilots went principally to Nos. 112 and 250 Squadrons where they quickly comprised about 45 per cent of the aircrew strength. Fighter pilots, however, were sent to other R.A.F. squadrons and also to No. 3 because of the inability to secure adequate reinforcements from Australia to keep pace with operational wastage.⁵ The spread of those Australian individuals continued among all squadrons in varying intensity throughout 1941.

The work of Australians on medium- and light-bomber squadrons is exceedingly difficult to assess for often they served in crews of mixed nationality, so that individual contribution is submerged firstly in crew performance, then in squadron performance and finally by the over-all intention of any particular operation. Nor does bombing activity lend itself to obvious chances of personal distinction, for throughout this period the bombers, when not drawn into the land battle, were doggedly engaged on routine attacks against Libyan and Balkan ports. Sergeant Clowry,⁶ of No. 38 (Wellington) Squadron R.A.F. failed to return from an experimental mine-laying attack against Benghazi harbour on 14th July. Sergeants Mellor⁷ and Barnes⁸ of No. 37 (Wellington) Squadron R.A.F. also achieved prominence some weeks later. Temporarily based at Malta they volunteered for the task of laying mines inside Tripoli harbour. During September Mellor made four flights and Barnes five, dropping their mines from 150 feet. During his last attack on 30th September Barnes' Wellington was hit by a 3.7-inch shell which blew away the star-board petrol tank and disabled one engine and all the hydraulic controls, entailing a nightmare return flight over the sea.

It is only the over-all effect of this constant battering of enemy supply ports, primarily a question of logistics and secondly one of morale, which can have any significance. But although the work of these men must necessarily be dismissed by a few generalisations in parentheses to the description of the main struggle, their efforts were collectively of great importance. Though normally the risks they ran from enemy air opposition were not as great as over Germany, the majority of their targets were heavily

⁵ It was comparatively easy to infiltrate raw pilots, even in considerable numbers, into a well-established fighter sqn organisation.

⁶ Sgt F. Clowry, 402110; 38 Sqn RAF. Public servant; of Canberra; b. Sydney, 2 Apr 1918. Killed in action, 14 Jul 1941. A brother, W-O T. P. Clowry, also served with 38 Sqn at this time and later with 14 Sqn RAF. He was shot down and captured off Sicily in 1943.

⁷ F-Lt L. H. Mellor, DFM, 404048. 37 and 267 Sqns RAF, 38 Sqn. Despatch driver; of Brisbane; b. Brisbane, 6 Oct 1919.

⁸ F-Lt J. W. Barnes, DFM, 404050. 37 Sqn RAF, 37 and 36 Sqns. Structural engineer; of Highgate Hill, Qld; b. Oakey, Qld, 27 Feb 1916.

defended by guns, and they faced special hazards operating by day during the intensive periods when the battle surged to and fro across Cyrenaica. The light-bomber crews especially knew all the dangers and discomfort of constantly moving forward and retreating.

The first eight R.A.A.F. fighter pilots reached the newly-formed No. 250 Squadron R.A.F. at Aqir, Palestine, on 5th May and were almost immediately employed on a variety of tasks. One flight of ten Tomahawks were sent to Amiriya to assist in the defence of Alexandria; it will be recalled that on the 14th and 15th May two aircraft of this squadron escorted No. 84 Squadron Blenheims bombing German aircraft at Palmyra and Damascus; a day later two Tomahawks were sent to Cyprus. By 25th May, however, the whole squadron was reunited at Lake Maryut, engaged on shipping-escort patrols and the defence of Alexandria. The pilots benefited from a quiet spell before moving forward on 11th June to Sidi Haneish to take part in the impending army campaign designed to relieve Tobruk.

Operation BATTLEAXE, which opened on 14th June, is chiefly interesting from an air viewpoint because the general commanding in the Western Desert pressed successfully for the employment of R.A.F. fighters as an "umbrella" directly above his troops. For three days No. 250 flew a series of standing patrols over the battlefield, meeting very few enemy aircraft; but when, on 18th June, the land battle swung very much in the enemy's favour, Tedder intervened and ordered all fighters to concentrate on ground strafing. This was done, the Tomahawks of No. 250 concentrating on the main Capuzzo-El Adem roads. Although effective this was relatively costly, as four pilots including one Australian were lost on one such operation. Because of its tank losses the Western Desert Force had already begun to withdraw to its original positions and the enemy made no attempt to exploit his success on the ground.

The remainder of June was spent by the Australians in No. 250 making sweeps over eastern Cyrenaica, escorting Blenheims to attack Axis airfields, and covering Tobruk convoys, now vital because the failure of the land operation inevitably meant prolongation of siege conditions. Their first positive engagement came on 26th June while escorting bombers to Gazala, and, raw as they were, the Australians acquitted themselves with distinction. Pilot Officer Caldwell⁹ and Sergeant Coward¹ each shot down an Me-109 from a force of thirty enemy aircraft which attacked between Capuzzo and Tobruk, while Pilot Officer Kent,² after badly damaging a Messerschmitt last seen spinning away in a dense cloud of smoke over Gazala, dispatched a G-50 and came down low to destroy a staff car on the escarpment near Salum. One Australian was lost on this sortie and

⁹ Gp Capt C. R. Caldwell, DSO, DFC, 402107. 250 Sqn RAF; comd 112 Sqn RAF 1942; W Ldr 1 Wing 1942-43; comd 1 Wing 1943, 80 Wing 1944-45. Commission agent; of Rose Bay, NSW; b. Sydney, 28 Jul 1911. When Caldwell left the ME, Tedder wrote a personal assessment in Caldwell's log book: "An excellent leader and a first-class shot." This was a rare and highly-valued honour from the AOC-in-C.

¹ Sqn Ldr G. C. Coward, DFC, 404004. 250 Sqn RAF, 3 Sqn. Butcher; of North Ipswich, Qld; b. Charters Towers, Qld, 4 Feb 1918.

² P-O J. F. S. Kent, 402124; 250 Sqn RAF. Departmental manager; of Edgecliff, NSW; b. Sydney, 17 Jul 1913. Killed in action 30 Jun 1941.

four days later Kent himself was shot down when nine Tomahawks escorting a Tobruk convoy met the attack of twenty Stukas escorted by thirty enemy fighters. Caldwell again figured prominently, shooting down two Ju-87's and sharing with Sergeant Whittle³ an Me-110 claimed badly damaged but almost certainly destroyed. The month of July passed with the squadron almost entirely engaged in uneventful convoy escort but on 7th July one large-scale sweep with other squadrons was staged over Bardia. Nothing was seen by the main body of fighters, but Caldwell, who had become separated from his companions, claimed that he shot down one of two G-50's seen returning to their airfield, and, on his way home, strafed car parks near Salum and killed a number of enemy soldiers. Caldwell was already developing an uncanny gunnery sense which was to bring him great success, and he assiduously practised this by low-level firing at his own aircraft's shadow when other targets were lacking. Twice during August enemy attacks came while No. 250 was escorting convoys. The first time was on 18th August when twenty-five Messerschmitts appeared first in an attempt to split up the escort and thus allow following bombers freedom of action. In a hectic battle which lasted for thirty-five minutes and ended at dusk, several enemy fighters were damaged but one Australian was killed. Eleven days later the other attack developed on a convoy north of Sidi Barrani and this also was beaten off. On this occasion Caldwell further demonstrated his extraordinary fighting qualities:

At approximately 1905 hours whilst acting as weaver⁴ . . . I was attacked by two Me-109's, one coming from astern and the other from port side, neither of which I saw personally. Bullets from astern damaged tail, tail trimming gear, fuselage and starboard main plane, while the aileron on that side was destroyed and a sizeable hole made in the trailing edge and flap . . . evidently by cannon shells, a quantity of splinters from which pierced the cowling and side of the cockpit some entering my right side and legs. Fire from the port side . . . damaged the fuselage, a number of bullets entering my left shoulder and hip, small pieces of glass embedding in my face, my helmet and goggles being pulled askew across my nose and eyes—no doubt by a near miss. As a result of the hits on the mainplane and probable excessive avoiding action the aircraft spun out of control. Checking the spin I blacked out when pulling out of the ensuing dive, recovering to find flames in the cockpit. Pulling the pin from the safety harness I started to climb out to abandon the aircraft, when the fire, evidently caused by burning oil and not petrol as I thought, died out, so I decided to remain and attempt a landing.

Looking behind me as I crossed the coast at about 500 feet some six miles east of Sidi Barrani . . . I saw a number of planes manoeuvring . . . in a manner suggesting an engagement. As my plane seemed to answer controls fairly well, apart from turns . . . I made a gradual turn and climbed back towards said aircraft finally carrying out an attack on what I believed to be an Me-109 . . . Having previously lost the pin to my harness I was holding the straps in my left hand for security which together with damage sustained to aircraft . . . [made it] inadvisable to attempt much in the way of quick change of altitude so I carried straight on to very low level and continued to base arriving at 2010 hours. Using half flap only [because of damage] I landed to find the starboard tyre flat as the result of a bullet hole

³ Sqn Ldr R. J. C. Whittle, DFM, 404009. 250 Sqn RAF; comd 86 Sqn 1943-44. Pharmaceutical chemist; of Murwillumbah, NSW; b. Brisbane, 10 Jul 1914.

⁴ One or more fighters normally protected the rear of their formation by independent scanning to avoid surprise attack. The constant change in altitude and direction of these protective rear-guards gave rise to the term "weaving" (simile of weaver's shuttle).

The lull in the desert was temporarily broken by Rommel's reconnaissance thrust towards Sidi Barrani on 14th September. No. 3 Squadron R.A.A.F. had arrived back at Sidi Haneish the previous day and sent six Tomahawks to strafe Gambut with success, although vigorous fighter opposition was met and two Australians were lost. Apart from this raid, No. 3, together with No. 250 and No. 112 R.A.F. newly arrived at Sidi Haneish, spent September mainly in local standing patrols and escort to convoys. The use of fighters on standing patrols had repeatedly been condemned as wasteful but the determined opportunist forays of the superior Me-109F at this period made this unsatisfactory method of defence temporarily inevitable. The "decoy" tactics employed by the Germans were well illustrated on 24th September when at 12.45 p.m. Flight Lieutenant Saunders attacked and set on fire a lone Ju-88, only to be attacked himself and forced down by five Me-109's which had been lurking above. Saunders escaped with superficial wounds only but his aircraft was destroyed on the ground by the enemy fighters. The other fighter squadrons reported little activity although Caldwell, on 27th and 28th September, claimed severe damage to one of several Me-109's when they attacked a bomber force which No. 250 was escorting to Bardia on each of these two days.

At the beginning of October there was a noticeable change in fighter operations. The air plan for Operation CRUSADER was to begin on the 14th, and already experimental fighter formations of two and three squadrons, alone and in company with bombers, were flown over Cyrenaica to test enemy reactions. No. 3 flew on five such sweeps during the first half of the month, twice (on the 9th and 10th) partly to cause a diversion while Hurricanes of No. 451 reconnoitred elsewhere. The only positive result came on the 12th when No. 3 with No. 2 Squadron S.A.A.F. covered an army ground-reconnaissance thrust near Bir Sheferzen. At 9.10 a.m. No. 3 was attacked by Me-109's and a very bitter struggle resulted. Sergeant Cameron⁵ shot one down, Flying Officer Jewell⁶ probably destroyed another and four other Messerschmitts were damaged. One Australian pilot, forced to bale out, was killed when the enemy fired at him as he parachuted down. Another Tomahawk was hit by cannon fire and was forced to land, being flown back to base later, while a third landed damaged at Sidi Haneish. Later in the day No. 112 covered the same area and they too engaged a mixed force of fifteen Me-109's and ten G-50's. Pilot Officer Jeffries⁷ shot down an Me-109F but the other Australians on that squadron fared badly, one being wounded, another reaching base with a badly-damaged aircraft, and two more being shot down, although both were picked up that night by the Coldstream Guards.

⁵ F-Lt A. C. Cameron, DFM, 404085; 3 Sqn. Station overseer; of Biddeston, Qld; b. Toowoomba, Qld, 15 Sep 1912.

⁶ Sqn Ldr W. E. Jewell, 260725; 3 Sqn. Hotel manager; of Brighton, Vic; b. Carnegie, Vic, 21 Jan 1917.

⁷ F-O R. J. D. Jeffries, 406179; 112 Sqn RAF. Civil servant; of Mosman Park, WA; b. Midland Junction, WA, 14 Feb 1918. Killed in action 12 Dec 1941.

CHAPTER 5

PROBLEMS OF THE EMPIRE AIR SCHEME

ON 25th December 1940 when No. 3 Squadron was at Salum and almost exactly a year after the arrival of the main body of No. 10 Squadron, the first Australians trained under the Empire Air Scheme landed in England. This party of twelve officers and twenty-three sergeant pilots had left Australia in July and had completed their flying training at the Royal Canadian Air Force's No. 2 Service Flying Training School at Uplands near Ottawa. Although this was no more than a cloud as big as a man's hand, at the same time a larger number of trainees had similarly graduated from advanced schools in Australia. At monthly intervals from April 1940 more and more men passed from initial training schools to elementary and then service flying training schools or to bombing and gunnery or navigation schools either in Australia or Canada. These courses took an average of eight months from enlistment until individuals were ready for attachment to the Royal Air Force.¹

Despite the failure of Great Britain, because of unforeseen war emergencies, to provide the full quota of training aircraft, equipment and technical help stipulated in the Riversdale Agreement, the Australian Air Board by energetic improvisation had no real difficulty in expanding Australian schools step by step with the general Empire Scheme. When Canada requested in August 1940 that monthly drafts of pilots from Australia should total 80 instead of the agreed figure of 40 this was possible by increasing the planned intake, although in the first instance it meant withdrawing the most advanced men half way through their initial training school course. In October Canada requested a further increase of the monthly quota to 112 because of acceleration of courses in Canadian schools, but on this occasion Australia was able to offer only 100 pilots per month, an increase of 25 per cent instead of the 40 per cent sought. The originally agreed allocation of 42 observers and 72 wireless air gunners was not affected by this large increase in pilot drafts. Apart from the Canadian commitment Australia had also in October 1940 agreed to send a draft of 40 men for training as pilots in Rhodesia. This, however, merely required an extension of initial training school capacity in Australia, because, unlike the main scheme, the Rhodesian proposal envisaged both elementary and service flying training overseas.

¹ There were frequent alterations in the length of courses to secure greater efficiency where possible but predominantly in 1940-41 to accelerate the flow of basically-trained aircrew. Thus the ITS course was soon extended from 4 to 8 weeks, but SFTS courses originally intended to take 16 weeks were reduced at the start of training in Canada to 14 weeks (by the elimination of attachments to bombing and gunnery schools) and again to 10 weeks in Oct 1940. A year later as will be seen the pendulum began to swing the other way and SFTS courses were increased first to 12 then to 16 and again to 20 weeks' duration. From late-1941 there was a general lengthening of all aircrew training courses. This, apart from other causes such as reserve pools of men at all stages of training and shipping delays, naturally extended greatly the original average time of eight months between enlistment and availability to the RAF.

While the actual training of aircrew thus proceeded most satisfactorily,² tentative arrangements were also being discussed concerning the future employment of these men. Even before the Ottawa conference had shaped the main lines of development of the Empire Air Scheme, the Air Ministry recommended establishing an Australian base depot in England. Mr Casey³ and Group Captain Bostock,⁴ members of the Australian mission to the London defence conference, included this suggestion in cables to the Australian War Cabinet and the Australian Air Board early in November 1939. Although it appeared probable that for some months No. 10 would be the only unit concerned, it was thought wise by Group Captain Bostock, Air Commodore McNamara (the air liaison officer in London) and the commanding officer of No. 10 Squadron (Wing Commander Lachal) to form a nucleus organisation as soon as possible and to prepare for rapid expansion when aircrew trained under the Air Scheme were ready for action overseas. The suggested duties of this base were:

- (1) To receive R.A.A.F. men on arrival in England.
- (2) To prepare and maintain personal records.
- (3) To organise and administer pay arrangements.
- (4) To supply equipment peculiar to Australians—such as uniforms.
- (5) To provide administrative facilities for repatriation, promotion, remustering, reclassification and other personal interests of aircrew.

Discussions at Air Force Headquarters in Melbourne brought ready agreement concerning this project, with the added suggestion that suitable accommodation be secured immediately to house a reinforcement pool where men might be trained before they were sent to operational units. Current enthusiasm went as far as proposing an initial allocation of seven officers and thirty-five airmen to man the base. The Minister for Air, however, considered that the form of the base organisation should be suggested by the Air Ministry, and on 16th January he initiated cables to the High Commissioner and McNamara asking them to discuss with British authorities the whole problem of a combined base headquarters and base depot.

At this time, Mr Bruce was engaged in inter-governmental discussions on the interpretation of *Article XV* of the Riversdale Agreement. These negotiations gave every indication of being protracted, and Bruce therefore directed McNamara not to take any official action with the Air Ministry concerning the proposed base, until details of commissioning, the wearing of Australian uniform, and the formation of national units had been decided. The all-party conference on *Article XV* was postponed

² Many faults were later evident, but in view of the intense emergencies and shortages of the period, the swift realisation and surpassing of agreed outputs was very satisfactory.

³ Rt Hon R. G. Casey, CH, DSO, MC. (1st AIF: GSO2 Aust Corps) MHR 1931-40 and since 1949; Treas 1935-39; Min i/c Develop and Scientific and Industrial Research 1937-39; Min for Supply and Develop 1939-40 and 1949-51; Min for Works and Housing 1949-51; Min for Ext Affrs since 1951. U.K. Min of State in Middle East 1942-43. Governor of Bengal 1944-46. Of Melbourne; b. Brisbane, 29 Aug 1890.

⁴ AVM W. D. Bostock, CB, DSO, OBE. (AIF 1914-17; 48 Sqn RFC 1917-18.) Dir Ops and Intell RAAF HQ 1938-39; DCAS RAAF 1939-41; CS AAF SWPA 1942; AOC RAAF Cd 1942-46. MHR since 1946. Regular air force offr; of Melbourne; b. Sydney, 5 Feb 1892.

from time to time because of difficulties raised by Canada (one of the main contributors). Nothing further was achieved until July, when the Air Board informed its liaison officers in Ottawa (Air Vice-Marshal Goble⁵) and London, and the officer in charge of R.A.F. Records, of the complete list of documents which would accompany trainees from Australia. The same letters made suggestions for complete record keeping by authorities in Canada and the United Kingdom. This solved the immediate problem of the first oversea draft of trainees, but by October the Air Board was again anxious concerning the wider objective, and cabled McNamara for the result of his discussions with the Air Ministry. McNamara replied that the arrangements already made for record keeping had somewhat lessened the need for an Australian base, but to this the Air Board could not agree and re-affirmed that it was essential to choose a suitable site for a base before trainees arrived in England.

On 20th November the Australian Chief of the Air Staff (Air Marshal Sir Charles Burnett) held a conference and decided to send to the United Kingdom, by the first available ship, a nucleus staff headed by Group Captain De la Rue. Opposition came immediately from the Secretary of the Department of Air, who pointed out that in the Riversdale Agreements the United Kingdom Government had undertaken liability for disembarkation facilities, pay and maintenance of Australian airmen, and that the R.A.A.F. had no obligations except to supply the excess in Australian rates of pay over English rates. This demurrer was closely followed on the 22nd by a cable from the Air Ministry raising the same objections, but expressing willingness to withdraw opposition, if the Air Board thought the establishment of a base was essential. This change in attitude by the Air Ministry was largely influenced by its Postings Directorate which desired to retain the largest possible degree of flexibility in posting trainees from all Dominions. It was contended that this could not be done satisfactorily and with speed if more than one authority were handling it, and the Air Ministry therefore proposed that six Australian officers and eight airmen should be sent to work within the R.A.F. Central Records Office and Reception Camp. The Australian proposal for a base depot was similarly considered unnecessary, as it was the intention to send trainees almost immediately to operational training units and thence to squadrons. At that time it was thought that one small camp would be capable of handling men of all nationalities, not absorbed by training units. The Air Ministry also queried the vague proposal to conduct training at the Australian depot and advised that whatever its form it must prove uneconomical and a duplication of R.A.F. facilities. By this time McNamara and Bruce had also changed their opinion in this matter and both recommended that the Air Ministry advice be accepted. Accordingly on 28th November the proposal to form an oversea base was

⁵ AVM S. J. Goble, CBE, DSO, DSC. (RNAS 1915-18; comd 5 Sqn RAF 1917-18.) Act CAS RAAF 1939-40; Aust Liaison Offr to EATS Canada 1940-45. Regular air force offr; of Melbourne; b. Croydon, Vic, 21 Aug 1891. Died 24 Jul 1948.

finally abandoned in favour of the far less ambitious project of sending a few junior officers to work at the R.A.F. Reception Centre at Uxbridge.

British views concerning administrative arrangements for handling Empire Air Scheme trainees were further expounded on 16th December 1940 during discussions at the Dominions Office between representatives of the Governments of the United Kingdom, Australia and New Zealand. The Under Secretary of State for Air (Captain H. H. Balfour⁶) explained that, as training schemes had resulted in the retention in the Dominions of large numbers of air force personnel, it was appropriate that this effort should be recognised by representation of each Dominion in the field by squadrons of its own air force. Two methods of achieving this end had been closely studied:

- (a) The formation of Dominion squadrons with air crews as they became available, allowing for wastage under war conditions.
- (b) As assessment of the manpower effort which each Dominion was contributing to the training schemes, and, with this as a basis, the calculation of the strength in squadrons which that manpower would maintain.

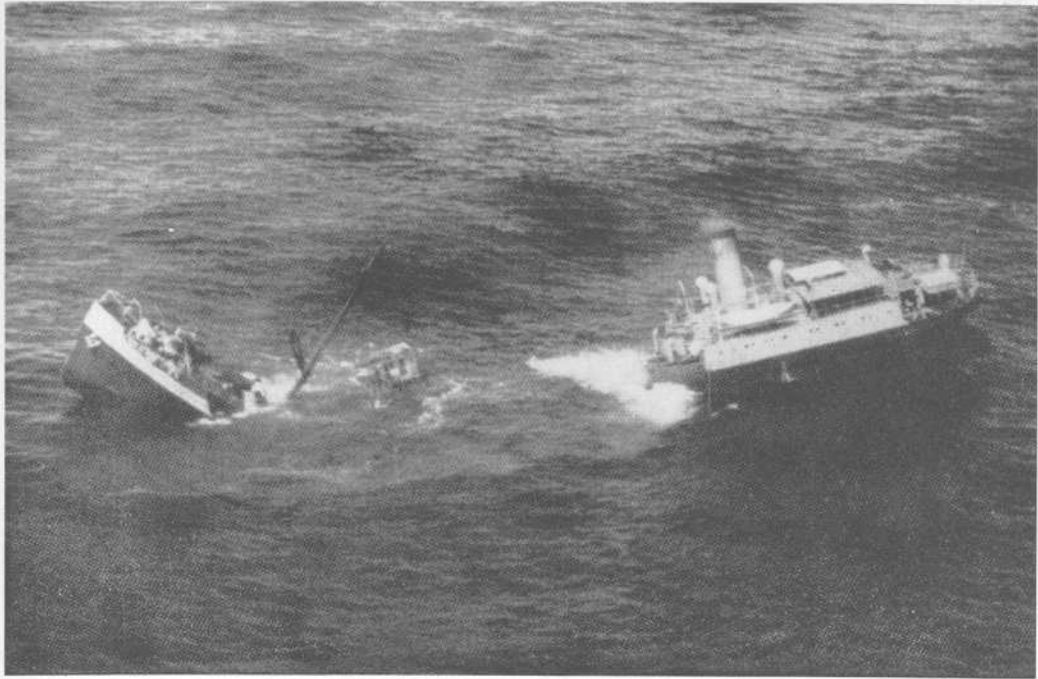
The first alternative would inevitably create a preponderance of units manned by Dominion aircrew, but with United Kingdom ground personnel; and it was therefore proposed to form only eighteen squadrons of the R.A.A.F. from aircrews trained under the Empire Scheme.⁷ An essential feature of the arrangements would be a central postings organisation, with provision for Dominion representatives to serve in the Directorate of Postings at Air Ministry, and within the Royal Air Force Records Office. This was to ensure that the requirements in aircrew of the proposed Dominion units would be satisfied, after which the balance of Australians would be posted to R.A.F. squadrons. The positive identification of Australians would be secured by the fact that they would wear their own uniform and distinctive badges, whether they served in Australian or British units. The eighteen proposed R.A.A.F. squadrons were to be established in step with the general expansion of the Royal Air Force, and the type of squadrons would relate to existing war requirements. The aim was to establish these units according to the following timetable:

By March 1941	2	squadrons to be formed				
„ June 1941	6	„	„	„	„	„
„ September 1941	9	„	„	„	„	„
„ December 1941	12	„	„	„	„	„
„ March 1942	15	„	„	„	„	„
„ May 1942	18	„	„	„	„	„

Mr Bruce had attended this meeting authorised to advance the more limited Australian proposals of February 1940, but, having determined that this new scheme entailed no new financial liability for Australia, he warmly commended to the War Cabinet the generous arrangements thus

⁶ Rt Hon Lord Balfour of Inchrye, MC. (1914-18: 60 Rifles, RFC and RAF.) Parl Under Sec for Air 1938-44; b. 1 Nov 1897.

⁷ Similarly 25 RCAF and 6 RNZAF sqns were projected.



(R.A.A.F.)

A torpedoed tanker, a frequent sight for those on convoy patrol during the winter of 1940-41.



(Sport and General, London)

These airman pilots at R.A.F. Station Uxbridge (near London), were part of the first Australian draft from the Empire Air Training schools in Canada to reach the United Kingdom. The kit bag in the left foreground with the stencilled number 400,054 reveals that its owner was one of the earliest recruits from Victoria. Aircrew numbers began at 400,000 and were allotted in groups to each State. December 1940.



(Canadian National Film Board)

A Harvard training aircraft over the Royal Canadian Air Force service flying training school at Uplands, near Ottawa, Canada, where many Australians completed pilots' courses.



(Canadian National Film Board.)

Australian trainees at Uplands with their Harvard training aircraft. Left to right LAC's W. J. Kennedy, R. A. Knappet, R. H. C. Sly, W. J. Metherall.

outlined. Approval was cabled from Australia on 17th January 1941, but a memorandum of agreement containing the above provisions was not actually signed in London until 17th April.⁸ This document postulated that as soon as practicable United Kingdom ground staffs and senior officers, provided for the speedy formation of Australian squadrons, would be replaced by suitable Australians. The Australian Government was also empowered, should it so desire, to send to England a high ranking officer who would have access to group and command headquarters, and to the Chief of Air Staff concerning all matters affecting the employment of Australian airmen, except those already within the sphere of the High Commissioner.

While, at a high level, these arrangements were being concluded with general satisfaction, Australians arriving in England were sent to Uxbridge, a peace-time R.A.F. station on the outskirts of London. There was at this stage no separate policy for the treatment of Dominion aircrew, and the only concern of this unit was to employ them to the best advantage, according to the needs of the moment. Although this may appear adverse criticism especially in view of what was to transpire later, it should be remembered that the Battle of Britain had not been long won and the United Kingdom was still subject to heavy night attack. The R.A.F. was labouring against an enemy vastly superior in numbers, and against shortages in every direction. All men as they arrived from overseas were urgently required to fill the many existing gaps in the machine.

At Uxbridge, after completing documents for record purposes and receiving kit to full scale, including such necessary evils in war-time Britain as steel helmet, respirator and identity card, Australians were sent on short leave preparatory to posting to operational training units. The early drafts were all of pilots only, and no difficulty was encountered in finding immediate vacancies for them, chiefly at No. 56 Operational Training Unit for fighter pilots, and Nos. 11 (Bassingbourn) and 30 (Lossiemouth) for bomber pilots. Men destined for Coastal Command had first to complete a course at a school of general reconnaissance, and accordingly, on 16th February, six sergeants were sent to No. 3 School of General Reconnaissance at Blackpool. No. 3 Personnel Reception Centre was formed at Uxbridge on 1st March to deal with all incoming Dominion airmen, and a week later, an Australian officer arrived to command "A" Flight in which were congregated all Australians and New Zealanders. The total capacity of No. 3 P.R.C. was 750 men, but in view of the stated purpose of sending aircrew to operational training units without delay, this was considered ample for all needs. Certainly, during the early months, there was no indication that the abandonment of the proposed R.A.A.F. depot was unwise, as the position at Uxbridge was:

⁸ The comparable Canadian memorandum was signed on 7 Jan 1941.

	R.A.A.F. arrivals (Pilots)	Posted	On strength at end of month.
December 1940	35	—	35
January 1941	—	35	—
February 1941	74	74	—
March 1941	18	18	—

In October 1940, the Air Ministry had requested that 30 pilots, 30 observers and 45 wireless operators be sent monthly from Australia direct to the Middle East. The first of these arrived early in 1941 and went to the general aircrew pool at Geneifa in Egypt and thence to training units, or directly to fighter and light-bomber squadrons, which completed their preparation for battle within their own resources. Here also the Air Ministry had advised against establishing an Australian base, but in view of the probable dispersal of men over vast areas, in November it had suggested that De la Rue be sent there to watch R.A.A.F. interests, or to work as a staff officer within Middle East Headquarters. The Air Board replied that it did not intend to send any group captain overseas, unless he was urgently needed and decided to rely on existing local R.A.F. arrangements.

There was, however, from the outset continual difficulty concerning pay arrangements and equipment for Australians arriving in the Middle East. This situation was aggravated by a supplementary agreement in October 1940, by which Australia contracted to send additional pilots to complete their training in Rhodesia. These men sometimes arrived in convoys at Suez to find that local administrative officers were unwilling to take responsibility for their pay and onward journey. Headquarters Middle East, pre-occupied with three separate air campaigns, soon admitted that it required help to solve peculiarly Australian administrative problems, and on 3rd March 1941 requested, through McNamara, three officers from Australia to assist with pay and records. The Air Board finally approved this proposal, but no action had been taken when two months later Air Marshal Tedder cabled for an equipment officer and three clerks in addition to the original request. Royal Air Force Headquarters Middle East, impatient of delays, had meanwhile made its own emergency arrangements by calling on Wing Commander McLachlan of No. 3 for advice as soon as his position in command of Benina lapsed with the Axis offensive. Some resentment of this unilateral action was shown by the Air Board when it received cables early in May signed by McLachlan. The Chief of the Air Staff commented: "I notice . . . that Wing Commander I. D. McLachlan had been appointed as R.A.A.F. Liaison Officer to Headquarters, Middle East. I am unaware of any

arrangement or necessity for the employment of a liaison officer in the Middle East and consider that the services of this officer, with his war experience, would be most valuable in Australia. If, therefore, he is not required to command 3 Squadron, I wish a signal sent to the Middle East requesting that he be made available for return to Australia as early as possible." This cable was duly sent but in reply the Middle East authorities again stressed that an officer of rank not less than a wing commander was essential to coordinate administrative requirements of R.A.A.F. men.⁹ On 6th June 1941, the Air Board signalled permission for McLachlan to remain as liaison officer, but only as a temporary measure. This cable reiterated that Air Force Headquarters could not see the necessity of a liaison officer in the Middle East but offered instead to send an officer to assist as a member of the Middle East Headquarters Staff.

Air Force Headquarters was more concerned early in 1941 in making plans for the eighteen projected squadrons, which would form Australia's major contribution in the air, than in the apparently minor difficulties met by the early drafts of aircrew. There was, at this stage, a firm desire to provide ground staff for all squadrons, and accordingly the Air Ministry was asked to stipulate in advance which types of squadron would actually be formed first, so that training and enlistment of men in the required trades could be effected without delay. Australia, taking into consideration her own future needs, suggested:

- 4 general-reconnaissance landplane squadrons.
- 2 general-reconnaissance flying-boat squadrons.
- 6 medium-bomber squadrons.
- 4 fighter squadrons.
- 2 army-cooperation squadrons.

Although anxious to meet Australia's wishes, the Air Ministry replied that it was unlikely that all R.A.A.F. bomber squadrons could be formed as medium bombers and also that it was unlikely to allot six general-reconnaissance squadrons to one Dominion. The current need for the latter type was limited and it was doubtful whether such a number could be justified to coincide with the planned dates of formation of R.A.A.F. units. Air Force Headquarters thereupon, as with the administrative problems, left the selection of types of squadrons entirely to the Air Ministry, requesting merely that it be notified in advance of each formation. Thus the dispatch of Nos. 450 and 451 Squadrons to the Middle East, during the second week in April, was enthusiastically agreed to, as it assured that the first part of the program was completed according to the timetable. The ground staffs for these units, however, were not complete. There was a shortage of non-commissioned officers, armourers and wireless-electrical tradesmen, and the men sent, although fully trained, lacked experience on modern operational aircraft.

Early in 1941, as a result of intensified recruiting and training programs, the lag of ground staff for Empire schools in Australia had not only been

⁹ It was pointed out that in similar circumstances the AIF had appointed a lieutenant-colonel.

overcome, but there was a rapidly-mounting surplus which promised to become embarrassing. Australia found herself with large numbers of men of the fitter trades, trained but inexperienced, who had to be held ready for the *Article XV* squadrons to be formed within the next twelve months. Barracks accommodation was already strained, and if these men were not to lose the skill of hand and technical knowledge they had gained in school, adequate provision would have to be made for continuation of their trade training, including supply of tools, then very short. As an alternative McNamara was instructed, on 25th March 1941, to offer 1,000 of these men to the Royal Air Force. This offer was gratefully accepted on 15th April, when the Air Ministry suggested that 600 should go to the United Kingdom and 400 to the Middle East, to gain experience on modern engines before being posted to R.A.A.F. squadrons. The War Cabinet then intervened to suggest that these men could be employed in munitions factories, but faced by the *fait accompli* of the agreement with the Air Ministry, decided to approve the dispatch of these engine and air-frame fitters during June and July. Already during April, 638 ground staff had gone to the Middle East¹ and, in addition to the fitters, some 600 men of other trades went abroad in mid-1941 to form Nos. 452, 454 and 455 Squadrons in the United Kingdom and No. 453 in the Far East.² Even with such an exodus, by August the recruiting and training of ground staff in Australia had reached such a peak that the R.A.A.F. had to consider decreasing the rate of enlistment. Before doing this, however, the Air Ministry was asked whether more than eighteen R.A.A.F. squadrons could be formed to absorb the potential ground staff surplus. The Air Ministry replied cautiously that 25 per cent increase in squadrons might be possible after June 1942 and advised that the ground-training organisation should be maintained.

In England the hope that one small reception centre would suffice for all Empire Air trainees faded during the spring when ever-larger numbers of men arrived from Canada and Australia. On 1st July, No. 3 Personnel Reception Centre moved from its restricted quarters at Uxbridge to Bournemouth, a south-coast resort where many large hotels could be requisitioned. Although every effort was made to post men away as quickly as possible, the delay in some cases amounted to three months, and the actual progression of Australian aircrew through No. 3 Personnel Reception Centre is set out in the accompanying table.

Five more Australian *Article XV* squadrons were formed before the end of June 1941, but this apparent advance on the planned timetable was illusory. There was no difficulty in procuring Australian pilots from operational training units to man the two day-fighter squadrons (Nos. 452 and 457) which with experienced United Kingdom ground staff, a stiffening of experienced leaders, and a ready supply of aircraft and

¹ 279 ground staff for 450 Sqn, 270 for 451 Sqn, 64 for 3 Sqn and 25 for 1 Ambulance Unit.

² The men sent to England for 452, 454, and 455 Sqns were in fact spread over several other sqns. 454 Sqn, for example, did not form in UK at this time and its quota of ground staff was re-allocated. 139 ground staff were sent to Malaya for 453 Sqn.

equipment, were fit for action in a very short time. In the same month No. 453 Squadron formed in the Pacific without undue difficulty,³ but it was by no means so simple a task to form more complex types of squadron. No. 454, for which a ground crew complement had sailed during June, was held in abeyance and, after many changes in plan, did not form until a year later. One medium-bomber squadron (No. 455) commenced its official existence on 6th June at Swinderby in Lincolnshire, but it had no crews and was forced to wait more than a month before it received its first Hampden aircraft. Australian crews did not exist at this time, for up to the end of May, of 250 men posted to operational training units only 26 were navigators and only 8 gunners. Even from the relatively large numbers posted during June, July, August and September,

1941	Arrivals					Posted					Not Posted				
	P ¹	O ²	WAG	AG	Total	P	O	WAG	AG	Total	P	O	WAG	AG	Total
Apr	64	12		7	83	43	7		6	56	21	5		1	27
May	73	14	18		105	37	19		1	57	57		18		75
Jun	108	26	40	10	184	22	25	58	10	115	143	1			144
Jul	176	97	158	49	480	209	35	87	3	334	110	63	71	46	290
Aug	224	54	33	21	332	199	72	103	26	400	123	42	16	41	222
Sep	271	46	177	39	533	230	22	35	37	324	164	66	158	43	431
Oct	124	55	90	7	276	182	101	132	18	433	106	20	116	32	274
Nov	152	96	269	43	560	183	52	226	65	526	75	64	159	10	308
Dec	214	56	85	11	366	103	72	79		254	186	48	175	21	430
	1,406	456	870	187	2,919	1,208	405	720	166	2,499					

¹ P—Pilot.² O—Observer.

relatively few all-Australian crews resulted. The postings section of No. 3 P.R.C. was concerned simply with filling all the vacancies at operational training units and regarded all men as eligible, irrespective of nationality. Australians were thus scattered in varying numbers throughout the training organisation. Even at operational training units where Australian pilots, navigators and gunners entered together, it was often a deliberate policy of the commanding officer to form crews on technical merit only, while in some cases national crews were consciously avoided as being detrimental to training discipline.⁴ Most of these men went to units forming Wellington and Whitley crews, so that, although Australians were

³ Later chapters will contrast the experience of Nos. 450 and 451, also single-engined sqns. A shortage of equipment and facilities for operational training imposed special difficulties on Middle East Cd at this time.

⁴ Here again the illusion that Australians would not conform to normal service discipline died hard among professional soldiers and airmen. It was natural for groups of airmen (especially those trained in Canada) who had left Australia with a common purpose, trained together as leading aircraftmen, and then suddenly been transformed into p-o's or sgts, to retain for each other the warm affection engendered by their common life and experience, regardless of the fact that some were now ofrs and some other ranks. This camaraderie in off-duty hours, regarded as entirely natural by men from the Dominions, was considered undesirable by many United Kingdom commanding ofrs who attempted to segregate ofrs and sgts.

appearing on Bomber Command squadrons in appreciable numbers, it was more than six months after it had formed before No. 455 held more than a token number of R.A.A.F. crews.

A somewhat similar difficulty arose with No. 456, which was also formed during June as a night-fighter squadron. Several Australians were posted from Uxbridge or Bournemouth to twin-engined fighter training units, but on graduation these men were sent to R.A.F. squadrons, and five had been dispatched to the Middle East by the end of the year. No. 456 began its career with a single R.A.A.F. observer who was joined during August by one pilot. Sixteen air gunners arrived the same month, but as the unit was due to convert to Beaufighter aircraft, those that could not be retrained as observers became redundant and were soon posted away. However, on 13th September both Nos. 455 and 456 received substantial drafts of grounds crews from Bournemouth and these at last gave them a decided Australian character.

The slow progress made in establishing Australian squadrons overseas was attacked in Australia by the press and by the Opposition in Parliament. Mr Beasley⁵ publicly deplored the fact that individuals were scattered over many squadrons instead of being concentrated into national units. The Minister for Air, Mr McEwen,⁶ replied that the Government's ultimate aim was to achieve fully-Australian squadrons but that a large measure of dilution was inevitable at first. Certainly the change in Government later in 1941 brought no radical alteration, for relying on their own interpretation of the high-level agreements, neither the Air Board nor the politicians appear to have given deep thought to the very real difficulties at lower levels which hampered the development of squadrons. Paragraph 5 of the April Memorandum of Agreement had specifically called for a review during September of the arrangements for forming squadrons and "to consider the position and organisation of Australian air crews whom under these arrangements it may not be practicable to absorb in Royal Australian Air Force squadrons". This review, however, was never made, or even officially requested although it had been possible to establish only one, instead of three, new squadrons during the preceding three months. This was No. 458, which began to form in No. 1 Group, Bomber Command, on 25th August equipped with Wellington aircraft, and for which a satisfactory number of predominantly-Australian crews were quickly available. A second Wellington squadron (No. 460) was created during November, partly by transferring a large body of men from No. 458. A flying-boat squadron (No. 459) was projected at this time, but neither aircraft nor men were available. The program was thus three squadrons in arrears by December 1941, and of the nine squadrons in existence, only five were ready for operations.

⁵ Rt Hon J. A. Beasley. MHR 1928-46; Asst Min for Industry and Ext Affrs 1929-31; Min for Supply and Shipping 1941-45, for Defence 1945. Aust High Commr in UK 1946-49; b. Werribee, Vic, 9 Nov 1895. Died 2 Sep 1949.

⁶ Hon J. McEwen. MHR since 1934; Min for Interior 1937-39, for External Affrs 1940, for Air and Civil Aviation 1940-41, for Commerce and Agriculture since 1949. Farmer; of Stanhope, Vic; b. Chilton, Vic, 29 Mar 1900.

For more than a year, from April 1940 until June 1941, all training had been dominated by the urgent need for producing the maximum number of pilots in the shortest possible time. Faced by a vastly superior enemy in the air, the Royal Air Force had been forced to accept pilots with only 50 hours' experience on initial training aircraft and approximately 70 on advanced trainers. These, including the first Australian Empire Air graduates, took a short course on operational types of aircraft at operational training units and then went direct to squadrons. When, in June 1941, Germany invaded Russia, and the direct threat to England seemed at least temporarily reduced, the Air Ministry reviewed not only its operational program, but its training facilities. The outstanding requirement now became a rapidly-expanding bomber force to carry the war against Germany, but although there was, for the time, a large surplus of basically-trained pilots, Bomber Command expressed strong dissatisfaction with the quality of crews arriving on squadrons. There was a progressively-mounting accident rate, the incidence increasing sharply as pilots flew more complex types of aircraft—a fact suggesting that they were being pushed ahead rather too quickly and with not enough background of general flying experience.

It was tardily realised that pilots and other aircrew trained overseas needed some form of acclimatisation and refresher training when they arrived in the United Kingdom. This was especially true of Australians, for, although many went directly across the Pacific by ship, crossed Canada by train and joined the first available convoy from Nova Scotia to the United Kingdom, others travelled in small parties by any available cargo ship destined for England. Some indeed went in convoy to the Middle East, and after delay, sometimes of months, went to Durban, crossed the Atlantic to the West Indies, sailed north to Halifax in Canada and then recrossed the Atlantic. These long voyages inevitably meant loss of skills and knowledge, especially those hastily acquired during the early truncated Air Scheme courses. Flying experience over the plains and easily-identified landmarks of Australia and Canada also gave little preparation for European topography or weather.

During the summer of 1941 there was also a surplus of trained pilots in existing squadrons, partly because operations and therefore casualties had been relatively light, and partly because the first-line expansion of Bomber Command was much less than had been anticipated.⁷

Accordingly operational training units were instructed not to pass crews on to squadrons until they were truly fit for operations. This put the whole planned progression of aircrew out of gear, for with all sixteen O.T.U's crowded with partly-trained crews on ever-lengthening courses, no new aircrews could be accepted from Bournemouth. Undue delay there aggra-

⁷ There was an unexpected set-back in the production of operational aircraft, Bomber Cd's balance sheet for Aug 1941 was:

Aircraft destroyed	: .	259	New production	: .	200
Aircraft damaged	: .	266	Aircraft repaired	: .	219
		<u>525</u>			<u>419</u>

Net diminution in strength 106 aircraft

vated the factor of lost skill, so that even when eventually sent to O.T.U's, Australians found it difficult speedily to master Wellington and Whitley aircraft. As wintry weather began to interfere progressively with all flying, especially night flying, men found themselves at individual O.T.U's for from three to six months, instead of the six weeks normally taken early in 1941. An aggravating factor was that, with the switch in emphasis from fighter protection to bomber assault, a large proportion of men, who had previously trained on single-engined types, were now expected to transfer direct from Harvard or Wirraway aircraft to twin-engined bombers.⁸ As men were normally posted in rotation from Bournemouth, these especially handicapped pilots caused further congestion at O.T.U's.

By December 1941 great anxiety was expressed in all quarters at the slowness with which men were reaching the first line. Bomber Command complained that operations were handicapped by three factors; firstly, the low standard of airmanship and navigation, so that a large proportion of bombs did not even reach the target area; the necessity for squadrons to devote a great deal of their time to training; and the high wastage rate largely because of accidents, which made expansion impracticable. The Air Member for Training at the same time put forward a plan (approved by the Air Ministry on 9th December) that all pilots should receive a minimum of 300 hours training before they joined squadrons. This proposal indicated that all service flying schools should be located overseas, and that previous schools of this type in England should now be used as advanced flying units to bring oversea pilots up to such a stage of efficiency that they would pass speedily and safely through operational training units. Individual Australians were meanwhile showing some resentment at what they considered undue delays at Bournemouth or at operational training units. Men hurried through basic flying training and transported half way round the world within nine months, expected to begin operations almost immediately. This reaction increased noticeably after August 1941 when the earliest Australians in Bomber Command completed their first tour of operations, while those called up only a few months later waited at Bournemouth, with little hope of reaching squadrons for another six months. At the end of the year 420 men of whom 186 were pilots, 48 observers, 175 wireless-operator gunners and 21 air gunners were still awaiting posting in the Australian section of No. 3 P.R.C.

Some of the effects of changing war circumstances on the deployment of Australians trained under the Air Scheme were recognised by the Minister for Air, who, on 30th August 1941, invoked the provisions of the supplementary agreement and appointed Air Marshal Williams to command an Overseas Headquarters for the Royal Australian Air Force. This headquarters was to be under the general control of the High Com-

⁸ It had been appreciated that in the long run a greater number of pilots trained on twin-engined aircraft would be required, but because there were insufficient training aircraft of this type, an undue proportion of the early Empire Scheme schools were equipped with single-engined machines. While the United Kingdom faced the threat of invasion this early excess could be absorbed by the large expansion of Fighter Command and the growing needs of the Middle East.

missioner and would absorb the existing liaison office in London. The main duties of this headquarters were:

- (a) Inspection and liaison in connection with the Empire Air Training Scheme as projected in paragraph 10 of the April Memorandum of Agreement.
- (b) Direct access to and from R.A.A.F. personnel assigned to Air Ministry branches for duties of reception, postings, pay, accounting, records and promotions.
- (c) Records of R.A.A.F. personnel employed in administration duties associated with the Air Scheme, together with decisions on the employment, promotion, discipline and leave of this staff.
- (d) To be the base for receiving and dealing with enquiries from Australia on the location, condition and welfare of Australian airmen; for the oversight of hospital and other exceptional leave cases; for assistance in the organisation of comforts distribution; to supervise leave, entertainment, postal arrangements, historical records, and by arrangements with Air Ministry, all matters relating to reception and repatriation of personnel.

The scope of the control of this headquarters was to include all matters concerning Australians serving in the Middle East, but was confined to record keeping for those in the Far East. Williams was also charged to look after the personal interests of members of Nos. 3 and 10 Squadrons, as well as E.A.T.S. personnel, "except insofar as existing policy restricts postings or transfers between those two types of squadron". Other general instructions gave him normal powers of discipline over his own staff, and provision for convening and confirming courts martial, and appointed him as Australian representative at any discussions held in London concerning the working of the Air Scheme agreement. One further order, although made in good faith, was to cause much confusion in the future. This stated: "It is the definite desire of the Commonwealth Government that you will always bear in mind that the agreement provides not only for the manning of certain squadrons completely with R.A.A.F. personnel, but also that, in other cases, R.A.A.F. personnel should be grouped together so far as possible." No signed agreement had in fact been concluded embodying this Australian desire although the Memorandum of Agreement projected a review during September "to consider the position and organisation of Australian air crews whom it may not be practicable to absorb in R.A.A.F. squadrons". As previously stated, neither Government called for this review, but the Australian claim was, on 1st December 1941, included in Organisation Memorandum No. 1 issued by the Overseas Headquarters. Thereafter it was frequently advanced to the consternation of R.A.F. administrative officers, who naturally could find no sound basis for it in their own instructions.

Williams flew to the United Kingdom early in September 1941, and, on the 18th, sixteen other officers and forty-four airmen, who were to form the nucleus of his staff, left Sydney on the *Monterey*.⁹ When the Overseas Headquarters opened officially at Kodak House, Kingsway, on 1st December, McNamara became deputy air officer commanding, while

⁹ *Monterey*, well known on the USA-Australia run during the 'thirties, was the first US ship to carry Australian servicemen overseas during the period of America's neutrality.

Wing Commander Knox-Knight and Squadron Leader Birch were transferred from No. 10 to strengthen the administrative staff. The first necessity was to review the actual disposition of Australians at that time, but this was by no means easy. The unofficial Australian section, first at Uxbridge and then at Bournemouth, had enjoyed no direct contact with the air liaison officer, who had found it impossible to keep track of the 2,373 aircrew and nearly 1,500 ground staff men by then posted from No. 3 P.R.C. under purely R.A.F. arrangements.¹ Units were changing their location and function with bewildering speed, and many Australians, either as individuals or with their squadrons, moved, late in 1941, to the Middle East in readiness for the second Libyan campaign. Thus, although Williams began immediately a tour of inspection of *Article XV* squadrons and Command Headquarters in the United Kingdom, it was some time before he was able to obtain a clear picture of existing conditions, especially as the outbreak of war in the Pacific radically affected all previous R.A.F. plans.

Matters were even worse in relation to the Middle East and it was some months before Overseas Headquarters could publish reliable statistics as to even the number of Australians serving in that theatre of war. McLachlan had been recalled to Australia in July 1941 and his small liaison office abolished, on the Air Board's instructions, at the very time when airmen especially those held for long periods in the aircrew pool at Geneifa, were voicing active criticisms concerning pay, equipment, promotion and employment. Unit commanders for the most part did not know the correct procedure for satisfying Australian needs, and a number of local expedients served merely to cloud the original issues.

The Air Board, however, was convinced that no liaison office was required in the Middle East, and although Wing Commander Duncan² was attached to Middle East Headquarters, his instructions specifically forbade him to act as liaison officer. Worse still it appeared to H.Q. R.A.F. Middle East that the R.A.A.F. began to speak with two voices, one in Melbourne and one in London. The result was confusion at a time when the war situation, as a whole, was most critical; when Australia was pre-occupied with events near her own shores, when improvisation was still the rule in the Middle East, and when *Article XV* squadrons were about to form. Williams had clearly been instructed that administrative matters in the Middle East came under his control, but on 19th December, the air officer in charge of administration at Middle East Headquarters issued, as was later claimed, on the advice and "at the specific request" of Bostock (then Deputy Chief of Air Staff, R.A.A.F.), *Administrative Instruction (External) No. 191*, which ran:

¹ All correspondence was addressed through the offr comdg 3 PRC and forwarded through RAF Stn Bournemouth, itself administered by Technical Training Cd until Dec 1941, when it was transferred to 54 Gp of Flying Training Cd.

² Gp Capt W. J. Duncan, OBE, 270065. Dep Dir Personal Services RAAF HQ 1941; RAAF Liaison Offr Cairo 1941-44; comd RAF Desert Supply Column 1942, RAAF Stn Richmond 1944-45; SAO 1 TAF 1945. Plantation owner; of Rabaul, NG; b. Newcastle, NSW, 4 Apr 1902.

Nos. 450 and 451 Squadrons.

The above squadrons have been referred to in previous Middle East Air Orders and Administrative Instructions as R.A.A.F. squadrons.

Although it is intended that as far as possible these squadrons will continue to be manned by personnel ex Australia they do not themselves form part of the Royal Australian Air Force. The personnel of these squadrons are paid by and loaned to the Royal Air Force under the Empire Air Training Scheme and for all practical purposes they should be regarded as R.A.F. squadrons in every way. The squadrons will therefore be known as:

No. 450 (Australian) Squadron.

No. 451 (Australian) Squadron.

This notice was duly promulgated in the daily routine orders of the squadrons and caused dissatisfaction among the men. The Air Ministry, however, promptly ordered that this instruction be cancelled stating: "Nos. 450 and 451 Squadrons are R.A.A.F. squadrons and not repeat not R.A.F. squadrons Unilateral action such as that promulgated in your Administrative Instruction may be considered as breach of faith and have unfortunate repercussions. Cancelling order must therefore make it clear that these are, repeat are, Australian Air Force squadrons." The offending instruction was withdrawn and replaced on 23rd January 1942 by *Administrative Instruction (External) No. 213* which, however, in its unconditional simplicity contained another potent seed of discord:

On instructions from Air Ministry 450 and 451 E.A.T.S. Squadrons are to be regarded as R.A.A.F. squadrons with effect from date of arrival in this Command.

This caused an urgent warning on 8th February 1942 from the command accountant authorities that an amendment was necessary to emphasise that the squadrons were R.A.A.F. in nomenclature only and not in conditions of service. Nothing official was done, however, and on 28th April came a similar warning that "it is vitally necessary that the instruction be amended otherwise all concerned will regard these two squadrons as being a financial liability of the Commonwealth Government instead of the Imperial Government; and all arrangements regarding their pay, clothing, treatment in messes etc. would be correspondingly affected". At length the position was made clear but for six months at least apparently divergent official instructions had been circulating in the Middle East and those who had seen one but not all often acted incorrectly, while those who had seen two or more of the instructions often based their administrative actions on whichever one suited their convenience at the time. This uncertainty which prevailed throughout 1942 allowed No. 451 to claim in December that certain non-standard methods of maintaining equipment and transport records, and failure to render any account of non-public funds was because it was serving under R.A.A.F. conditions. Much correspondence followed before a definite ruling was given on 4th February 1943 that "for the purposes of accounting administration No. 451 Squadron should be treated in exactly the same way as an R.A.F. squadron".

Williams himself visited Cairo early in 1942, to press the provisions contained in his own instructions concerning the grouping and employment of Australian airmen, but the situation remained obscure. Middle East Headquarters cabled Bostock on 12th February: "In course of discussions, he informed us some of the principles, to which we have been working as result of advice and decisions made by you on recent visit, are incorrect . . . Williams referred to certain 'agreements' of which we were unaware regarding postings, crewing-up etc. of E.A.T.S. personnel which seem to be at variance with your decisions. After you have seen him and discussed visit, would be grateful for clear decisions by cable on points raised by him so that we may correct any mistakes we have made and adjust our policy accordingly. Questions concerning pay, postings, etc. of E.A.T.S. personnel seem to require urgent consideration. We think it will be difficult at first to form all Australian E.A.T.S. crews in bomber squadrons and concentrate these crews together with Australian E.A.T.S. maintenance personnel in one or two squadrons, as we are short at present, but will, of course, try and should finally be able to arrange this." Bostock replied briefly: "My advice to you on all matters of principle was strictly in accordance with policy of the Chief of Air Staff with which I know Air Marshal Williams disagrees. My minute to Deputy A.O.C.-in-C., dated Cairo 20th October, sets out our policy correctly."

This situation has been outlined at some length because it is obvious on looking back that, whatever may have transpired in conversations, swift and clear agreement could have been reached at the time. Bostock's long minute to Tedder on 20th October 1941 concerning policy regarding Australians serving overseas contains only one major inaccuracy—the repetition of the apocryphal claim that besides the eighteen *Article XV* R.A.A.F. squadrons, other squadrons "to be known for example as No. 701 (Australian) Squadron R.A.F." were part of the inter-governmental agreements.³ Throughout the minute both types are referred to in perhaps bewildering juxtaposition and context, but on careful reading Bostock's contentions, although false in parts, are perfectly clear. Certainly there is no justification for attributing to this document a "specific request" to

³ Great confusion of thought existed at Air Force Headquarters in Melbourne throughout 1941 concerning the status of Air Scheme trainees. Policy appears to be based sometimes on the Memorandum of Agreement, sometimes on the earlier Australian proposals for "infiltration squadrons" superseded by the Memorandum, sometimes on the unratified suggestions of Mr Fairbairn at the original Ottawa conference, or again on two or more of these premises. The arrangements detailed in the Memorandum were the only ones acknowledged by Air Ministry, but although these were known in Melbourne on 17 Dec 1940, vacillation continued. Thus on 12 Mar 1941 Air Board cabled McNamara: "The Empire Air Scheme Agreement provides that Australian air crew personnel for RAF serve in the RAF on embarkation, and are not temporarily attached to RAF within the service meaning of the word attached . . . In view of above policy although infiltration squadrons are in name Australian there will be no interpostings between these squadrons and actual RAAF squadrons . . . except as a temporary measure." On 31 Mar, however, a different standpoint was sought: "Reply urgently whether my interpretation of the Agreement is correct that the 18 new squadrons are squadrons of the RAAF attached to the RAF and not merely Australian squadrons of RAF. State whether Agreement provides that Australia has same rights in regard to domestic administration of these new squadrons as with any other squadron which might be attached to the RAF." On learning, however, that domestic administration remained with the RAF, the Air Board reverted to its conception of two distinct air efforts overseas, and on 26 May finally instructed McNamara: "Except for temporary attachments there must be no transfers from RAF or EATS to the permanent RAAF squadrons . . . The permanent RAAF squadrons are to be retained in the Australian Home Defence organisation, and will be administered by Air Board, RAAF."

re-style Nos. 450 and 451.⁴ It is obvious that even high ranking British administrative officers in the Middle East had no clear grasp of the E.A.T.S. Agreement, but were very keen to meet if possible the somewhat puzzling and apparently differing requirements of Bostock and Williams. Although completely misunderstanding Bostock's minute and therefore largely responsible for starting the muddle, Headquarters R.A.F. Middle East received little help from Bostock's final reply which merely implied factions within the Royal Australian Air Force and referred back to a document which had been patently misinterpreted. A clear unequivocal statement of R.A.A.F. policy at this stage would have avoided much subsequent misunderstanding.

The question of the title of *Article XV* squadrons was, as has been seen, eventually settled but not only the high ranking administrative officers but all those at all levels in the Middle East continued to be greatly hindered by inability to understand Australian requirements. Faced with these mutually contradictory opinions from Australian Headquarters in London and Melbourne, they were concerned at the flood of enquiries and dissatisfaction among Australian airmen, partly arising from desire to transfer to fight the Japanese, and partly because of the muddle in which their personal affairs were in the Middle East. Another strong hint was given to Air Force Headquarters that a liaison officer would be invaluable, and on 17th February, Middle East Headquarters made a further attempt to clarify the general issue, when it sent a cable to Melbourne, reading: "Williams led Australian E.A.T.S. personnel here to expect change of policy. Would like you to confirm present arrangements after you have discussed matters with Williams." No satisfactory reply was made and in practice many problems affecting Australians were shelved, or wrongly settled by R.A.F. authorities, especially in times of operational stress. It is probable that, as Air Marshal Drummond suggested, "the main cause of the misunderstanding is undoubtedly the time-lag between the dispatch and receipt of communications, combined with the difficulty at Air Ministry, or Air Board, to appreciate conditions out here". Equally correct was Williams when he criticised the passage of cables between Cairo and Melbourne without reference to Overseas Headquarters, which bore the responsibility in these matters. Whatever the reasons, it was the airman in the Middle East who suffered, and at a time when his peace of mind was sufficiently disturbed by the danger to Australia and the knowledge that some people at home were criticising him unfairly.⁵

⁴ Bostock's minute, para 8, states:

"... it was subsequently agreed that the ground personnel for 18 squadrons should be provided from Australia and that the squadrons so formed—consisting wholly of Australian personnel—shall be called 'RAAF squadrons'. Already two of this class of squadron have been formed in the Middle East Command, i.e., No 450 (Fighter) Squadron, No. 451 (A.C.) Squadron. Although these squadrons are named 'RAAF squadrons' and all Australian personnel—both aircrews and ground staff—are members of the RAAF, such units, and the Australian members of such units, are completely under the operational and administrative control of the RAF . . ."

⁵ The impact of the war against Japan is fully described in other volumes of this series. It affected airmen overseas chiefly in that though very many applied for permission to return immediately, they were not permitted to do so. They were urgently required where they were and would have been of little use in the Pacific unless aircraft and other equipment could have

The delays in forming truly-Australian squadrons, and the difficulties plaguing the many scattered aircrew, appeared to indicate that the original plan for a base headquarters and a base depot would have been preferable to mere reliance on existing R.A.F. administrative facilities. Thus while the tardily-created Overseas Headquarters strove to remove existing anomalies, Wing Commander White,⁶ reporting for duty at Bournemouth on 10th November, determined to create, as far as possible, an Australian base depot within the larger organisation of No. 3 Personnel Reception Centre. He found the aircrew scattered among commandeered hotels or billets throughout Bournemouth, and as a first step, he suggested that they all be congregated in one place adjacent to the administrative, equipment and training facilities provided by the R.A.F. This aim was realised early in 1942 when Australians moved into Bath Hill Court, Russell Court and the Royal Bath Hotel near the waterfront. On 20th November he also recommended that "A Squadron" should become officially the "Australian Section" of No. 3 P.R.C. This section was to have general supervision of Australian requirements at Bournemouth, with direct access to Overseas Headquarters to ensure a general improvement in existing reception procedure, and the elimination of discontent among impatient airmen. This arrangement was duly sanctioned by the Air Ministry early in December, but at first there were insufficient Australian officers and clerks to fill all requirements, nor even a typewriter, filing cabinet, stationery, or petty cash allowance. These difficulties were overcome progressively as the needs of R.A.A.F. aircrew became clear.

Throughout 1941 Australians were reaching England in all types of ships with varying degrees of comfort. Some ships were crowded and dirty, so that men arrived dishevelled and discontented, and the arrival of some ships carrying Australians was not notified in time to arrange for adequate reception of the men.⁷ A few Australians began to arrive as passengers or crew on ferrying aircraft, and other unorthodox arrivals included survivors from ships torpedoed off West Africa, and others forced down in Europe who had managed to escape to Gibraltar. The creation of an Australian Section did much to facilitate reception procedure, for White sent an officer to conduct all drafts from their point of entry to Bournemouth, and to ensure that all baggage arrived promptly with the men. As soon as possible after arrival each party was given a welcome and explanatory talk and then spent a week in routine documentation, night vision tests, medical examinations, pay and equipment parades before proceeding

returned with them. As Australia's apparent danger increased, however, irresponsible remarks in letters and the press, and badly-reported rumours, all seemed to criticise airmen overseas because they, unlike the bulk of the army, did not return to Australia.

⁶ Gp Capt Hon Sir Thomas White, KBE, DFC, 250875. (1st AIF: 1 Half-Flight AFC 1915.) Comd 1 ITS 1940-41, RAAF Stn Bournemouth 1941-42; RAAF Liaison Offr Training Cd RAF 1942; comd RAF Stn Brighton 1943. MHR 1929-51. Aust High Commr in UK since 1951. Of Melbourne; b. North Melbourne, 16 Apr 1888.

⁷ One party of Australians refused to embark at Halifax in a ship which had previously carried Italian prisoners of war who had left their quarters in a disgusting condition. Men disembarking in Iceland for transhipment complained of poor facilities there, while some troopships using the Cape route late in 1941 earned an unenviable reputation for food and accommodation issued to non-commissioned officers, one of whom reached England claiming that he was suffering from scurvy.

on leave.⁸ The object naturally was to gain the confidence and cooperation of incoming men, and to eliminate the apathetic tone, which had arisen at Bournemouth because of indifferent amenities and inability of existing resources to satisfy Australian needs. Postal arrangements were chaotic, and some letters and parcels, forwarded from training schools to the R.A.F. Records Section, were arriving up to twelve months late. White suggested that the proposed Australian Postal Unit should be established at Bournemouth, and while waiting for a decision he made emergency arrangements which were of great benefit. He found that the Australian Comforts Fund Commissioner at Amesbury had not been informed by the Air Ministry that any R.A.A.F. men were at Bournemouth, but as soon as the Australian Section was established, a regular supply of woollen clothing and food parcels was secured. There were, at this time, no Australian chaplains in England, but White arranged for R.A.F. chaplains to begin regular services. He also pressed for a leave hostel in London and a convalescent home in the country, pointing out that as few Australians had relatives or close friends in England, their need for social services was greater than that envisaged by normal R.A.F. provisions.

On return from leave, Australians at Bournemouth were given a short course of refresher training. This had begun during July when it became apparent that men would have to stay some months awaiting posting, and, although an ambitious scheme, did not operate well at first.⁹ Shortage of class rooms, up-to-date equipment, and competent instructors, made aircrews critical of the value of this course, and there was little enthusiasm except for Ministry of Information films and clay-pigeon shooting. Deliberate evasion of many lectures threatened discipline among all Dominion aircrew, so White, at the end of November, decided to march Australians to and from lectures, at the same time requesting the R.A.F. authorities to provide better instruction. Organised sport was also lacking, but here again, the Australian Section took independent action. The result of all these measures was that, in general, Australians were among the best-disciplined and purposeful airmen at Bournemouth. White also attempted to overcome the mechanical nature of R.A.F. postings routine, and to secure operational training for men according to their ability and personal wishes. It was inevitable, however, during the winter of 1941-42, when there were few vacancies in the operational training units, that there would be minor dissatisfaction at the length of the period spent at Bournemouth.¹ The desire to get quickly into squadrons caused further resent-

⁸ Leave arrangements were handled almost exclusively by the Dominion Hospitality Scheme run by Lady Frances Ryder and Miss Macdonald of the Isles. Each man was asked to state his main interests or specific wishes concerning a holiday, and he was then given the address of a private family ready to welcome him. This organisation was very efficient as, for example, on 30 Nov 1941, when 281 Australians proceeded on leave to various parts of the British Isles—all of them obtaining free private accommodation. This service was given to every incoming draft, and all men could throughout the war receive an invitation for a holiday of their own choice by sending a reply-paid telegram to the headquarters of this scheme.

⁹ The syllabus covering six weeks provided for lectures in navigation (12 hours), radio theory and practice (12), armament (12), drill (3), physical training (15), air raid precautions (6), aircraft recognition (7), films (17), clay-pigeon, rifle and revolver shooting (9), dinghy drill (2), anti-gas precautions (3), and general interest (9).

¹ A "Bournemouth Long Service Medal" for 3 months stay and a "bar" to this decoration for further "meritorious delay" was demanded by the impatient.

ment when Australians were posted as instructors, or staff pilots to non-operational units, because of the ever-growing training requirements. This feeling of frustration reached its height early in December 1941 when news came of the initial Allied reverses in Malaya and at Pearl Harbour. A letter signed by over 100 aircrew petitioned for immediate return to Australia, but these men finally accepted the position that, as partly-trained aircrew, they would not be of immediate help even if they could return, and that it was far more sensible to wait until they were fully trained, and had operational experience, before renewing their applications.

In times of comparative inactivity, personal problems came to assume very great importance to the individual airman, and next in importance to news from home and desire to reach a squadron, came matters of pay and promotion. The simple, accurate method of paying men by easily calculated credits in a pay book, which acted also as an identity document, was discarded when Australians embarked for overseas and thus became the responsibility of the R.A.F. Australians in the United Kingdom were placed under the pay system of the British Service, and those in the Middle East received a modified form of pay book, but under neither of these systems had the individual any indication to show what were his actual credits. A change from one theatre of war to another meant a change in pay procedure; while those trained in Canada had experienced yet another pay system. An even more potent source of confusion was, that while the Air Scheme agreement limited the actual drawing rate of each man to United Kingdom rates for his rank, the surplus pay under Australian rates was compulsorily allotted either to parents, wife, friends or even to a private bank account in Australia. Any member who, through changed circumstances such as marriage in Canada or the death of relatives in Australia, wished to change his allotment of pay, found that these adjustments could not be made at Bournemouth during 1941. The delay in satisfying these requirements for men on scattered units in the United Kingdom and the Middle East was very great, for few R.A.F. paymasters knew the intricacies of Australian pay problems. The total effect was some well-founded and much ill-founded dissatisfaction, purely because the position was obscure, both to the individual and to paying authorities.

Men also had time to form grievances concerning their initial rank and possibilities of promotion. In the R.A.A.F. officers were advanced from pilot officer to flying officer after six months, but this was not done automatically by R.A.F. authorities, for in that service the term was one year. The Empire Scheme agreement provided that a percentage of each graduating course should receive commissions according to their marks in final examination, but some Australian sergeants were able to point out that men of other Dominions received commissions with much lower marks. One all-Australian course at No. 7 Service Flying Training School, Macleod, Alberta, passed with record examination results, the course average being higher than the leading marks on the preceding

Canadian course yet, in both cases, from approximately 50 graduates, 17 commissions were granted. That this was by no means a freak result was shown the following month at No. 8 Service Flying Training School at Moncton, where in a composite course, Australians filled 19 of the first 23 places but were still granted commissions on a national percentage rather than a course basis.² Comparisons of this sort, and realisation that the South African Air Force gave commissions to all pilots and observers irrespective of merit, caused some ill-feeling among men who felt in any case that they were only marking time. White stilled many of these murmurs by personally interviewing all applicants for commissions, and he sent a report based on their record of training and these interviews, both to the officer commanding No. 3 P.R.C. and to Overseas Headquarters.³

Men who did not aspire to commissioned rank were nevertheless criticising the fact that the Empire Air agreement made them sergeants on graduation but made no provision for subsequent promotion. The Air Ministry had already decided⁴ that for United Kingdom aircrew, a certain number of posts for airman pilots and observers would be reserved in the ranks of warrant officer and flight sergeant; and for wireless operators and gunners in the rank of flight sergeant. McNamara had advised the Air Board of this decision on 23rd April, but no reply was received until 4th October when the Air Board replied that it had agreed to adopt this system, but that it had not yet submitted the proposal to the Australian War Cabinet. Finally on 5th November the establishment for Australian non-commissioned ranks was authorised as:

Pilots and observers: 10 per cent warrant officer,
25 per cent flight sergeant,
65 per cent sergeant.

Wireless-operator air gunners: 25 per cent flight sergeant, 75 per cent sergeant.

On 9th December all Royal Air Force units in the United Kingdom, and Headquarters R.A.F. Middle East were informed that Australians were eligible for promotion on the same terms as men of other nationalities. Immediate recommendations were sought for the limited number of vacant ranks, and these instructions were repeated on 18th December in Air Ministry Order No. A1067/1941. Later on 5th January 1942 the Commonwealth Government advised the Dominions Office by cable that the percentages of Australian aircrew to be granted commissions were:

² The plan to give commissions on a national basis irrespective of possible difference in standard was of course perfectly fair given the proviso that fairly distinct national air forces would emerge. Each Dominion had an obvious need for a definite proportion of officers within its own forces. Should, however, all components be regarded as one Dominion air force with equal opportunities of promotion for each man according to his ability, then a fixed proportion can only be defended on political grounds. This was an early example of the disparity between policy which constantly envisaged separate national air forces, and practice which tended to merge all into one. The fixed proportion of commissions granted to each course as it graduated was criticised on other grounds.

³ An Air Ministry Order made provision for individuals to apply to their commanding officer for consideration of appointment to commissioned rank.

⁴ Air Ministry Order No. 326/1941.

Pilots and observers: 33½ per cent on graduation, 16½ per cent in the field.

Wireless operators: 10 per cent on graduation, 10 per cent in the field.

Air gunners: 5 per cent on graduation, 15 per cent in the field.

A conference of representatives of all Australian formations in the United Kingdom was held at Overseas Headquarters from 22nd to 24th January 1942. All existing difficulties and those likely to arise through the extension of war to the Pacific were discussed, so that Williams, who was about to return by air to Australia, could secure any changes in policy or administrative detail necessary to the orderly development of Australian air effort overseas. Events had proved that the unprecedented experiment of the Empire Air Scheme had fulfilled its main purpose of providing quickly an ample flow of aircrew trained to a minimum standard. It was also apparent that the increasing complexity of air warfare demanded further training, which upset to a large degree the simple administrative provisions of the original proposals. In practice great difficulty had been found in times of stress in paying more than lip service to Australian aspirations for a compact national unit within the large composite air force. Reliance on Royal Air Force facilities to effect Australian wishes had palpably been a mistake, but centrifugal tendencies, once begun, were difficult to halt. The issue was clouded by Australian claims at variance with signed agreements, and by a curious reluctance, once the original proposal for close control of Australian aircrew through a base depot had been discarded, for the Air Board to accord to R.A.F. authorities actually confronted by practical difficulties, the precise help which they requested. Thus the continued opposition to the appointment of an Australian liaison officer in the Middle East, coupled with hesitancy in giving clear-cut decisions on problems as they arose, tended to defeat the avowed object of attaining a national force. Meanwhile, the airmen themselves, intent not so much on reaching Australian squadrons as getting quickly into any unit which satisfied their ambition, were thereby increasing administrative problems, easily solved only on the prior assumption that they were congregated in compact units, and not scattered piecemeal.

Then and later changes of emphasis left agreements and decisions gasping well behind facts, and however much Overseas Headquarters tried to paper the cracks, it could never obtain the kind of "national force" for which politicians strove. An important point already emerging was that the aircrew did not really care greatly whether or not a national force was formed; because both for them, and the ground staff, avenues of promotion were more numerous in the R.A.F. than they would have been if the Australians were confined to relatively few Australian squadrons, and also the aircrew were more interested in quickly getting to an operational squadron rather than any national unit.

CHAPTER 6

FIGHTER SQUADRONS IN 1941

FIGHTER Command of the Royal Air Force emerged victorious but sadly depleted from the Battle of Britain. In the autumn of 1940, twenty-four of its sixty-two operational squadrons were fit only for operations in quiet sectors, and indeed functioned for some months chiefly as reinforcement pools for the units active in the south and south-east of England. Recovery was rapid during the winter months and, with mounting reserves of aircraft and pilots, a large re-equipment and expansion program was effected so that, should the spring of 1941 bring any repetition of the enemy attempt to prepare for invasion by air attacks on Britain, he could be beaten even more decisively than before. The purely defensive tactics, hitherto necessary to conserve the inadequate stocks of Spitfires and Hurricanes, were also modified, Fighter Command becoming a double-edged weapon designed not only to defend Britain from attack, but capable of extending the struggle for air supremacy over the enemy hinterland. As early as 20th December 1940 two Spitfires carried out a low-level attack on Le Touquet airfield, and as resources grew, and enemy preoccupation in the Mediterranean and the Balkans discounted the threat of invasion, so the initial small-scale offensive sweeps grew in size, until, on 5th March, eighteen R.A.F. fighter squadrons took part in sorties over France within a period of six hours, and on 21st May sixteen fighter squadrons joined in a single patrol.

These offensive tactics were even further extended in June after Germany's attack on Russia, and were then designed not only to seek out and destroy German aircraft but to pin as many *Luftwaffe* squadrons as possible to western Europe and thus afford indirect help to Russia. The rapid decrease of enemy bombing activity over Britain and around her coasts, also resulted in the release of squadrons previously tied to defensive duties, and during the last six months of 1941 by far the greater part of Fighter Command's potential was devoted to offensive duties either independently or in cooperation with the light day bombers of No. 2 Group, Bomber Command. These operations in the main tended to conform to the following categories, by which code name they will hereafter be mentioned:

Circus—An operation by bombers or fighter-bombers, escorted by fighters and designed primarily to bring enemy fighters into action.

Rhubarb—Small-scale fighter attacks on ground targets.

Ramrod—An operation similar to a Circus, but its principal objective being the destruction of the target. Fighter Ramrods were also flown using cannon fighters instead of bombers.

Roadstead—An operation to escort bombers in diving or low-level attacks on ships, whether at sea or in harbour. Fighter Roadsteads were also flown.

Rodeo—Fighter sweeps over enemy territory without bombers.

Many other requirements including reconnaissance, air-sea rescue duties, special escorts and diversionary patrols had to be fulfilled as day-to-day tasks by

individual squadrons, as well as the standing readiness for defence, but the main pattern was of continuous aggression by day and vigilant defence by night.

Within the planned expansion of Fighter Command, three R.A.A.F. squadrons were formed during 1941, and, although only one of them was actively engaged in the mounting offensive over the Continent, the work of the other two in rear areas helped indirectly to augment the actual strength available for the more spectacular role.¹ Nor can the work of squadrons actually prosecuting the offensive be rigidly analysed, for although, as will become apparent, No. 452 Squadron R.A.A.F. was to play an important and distinguished part in air fighting over the English Channel and France, it flew as merely a sub-section of a wing, which itself might have from day to day any one of several distinct duties, all equally necessary for the success of any one of the types of operation, but which gave varying chances of engaging enemy aircraft. Thus, although the incidents and victories which resulted from courage, skill and opportunities well taken naturally form the main theme of any purely Australian history of these events, yet the wider picture of the gradual struggle for air supremacy must not be forgotten. The combats of one squadron, however heroic, form only part of the general pattern.

No. 452 Squadron began to form on 8th April 1941 at R.A.F. Station, Kirton-in-Lindsey in Lincolnshire, with sixteen Spitfire Mark I aircraft.² By 10th May twenty R.A.A.F. pilots had arrived from operational training units and a vigorous training program was initiated, as most of the Australians naturally had no squadron or operational experience. The commanding officer, Squadron Leader Dutton,³ and the two flight commanders, Flight Lieutenants Finucane⁴ and Douglas,⁵ were all R.A.F. officers and their painstaking and inspiring work during this formative period undoubtedly contributed largely to the fine record later achieved by the squadron. Within six weeks from the date of formation No. 452 became defensively operational on 22nd May 1941. Although at first all ground staff personnel were supplied by the R.A.F., these were gradually replaced as the necessary tradesmen arrived from Australia, and when, on 15th June, Squadron Leader Bungey arrived to take over command from Dutton, No. 452 was predominantly Australian in character. During the period 22nd May-11th July in an almost unbroken spell of good weather 189 operational patrols were carried out, but although on two occasions single enemy Ju-88's had been seen in the distance neither

¹ In Jun 1941 Fighter Cd had 84 squadrons.

² With two as initial reserve.

³ W Cdr R. G. Dutton, DSO, DFC, 39072 RAF. 111 and 145 Sqn RAF; comd 452 Sqn and 19 Sqn RAF 1941; 141 Sqn RAF; comd 4 Ferry Control RAF 1943-44; SASO 249 Wing RAF 1944; comd 512 Sqn RAF 1945, 525 Sqn RAF 1945-46. Regular air force offr; of Sanderstead, Eng; b. Hatton, Ceylon, 2 Mar 1917.

⁴ W Cdr B. E. Finucane, DSO, DFC, 41276 RAF. 65 Sqn RAF, 452 Sqn; comd 602 Sqn RAF and RAF Stn Hornchurch 1942. Regular air force offr; of Richmond, Surrey, Eng; b. Dublin, 16 Oct 1920. Killed in action 15 Jul 1942.

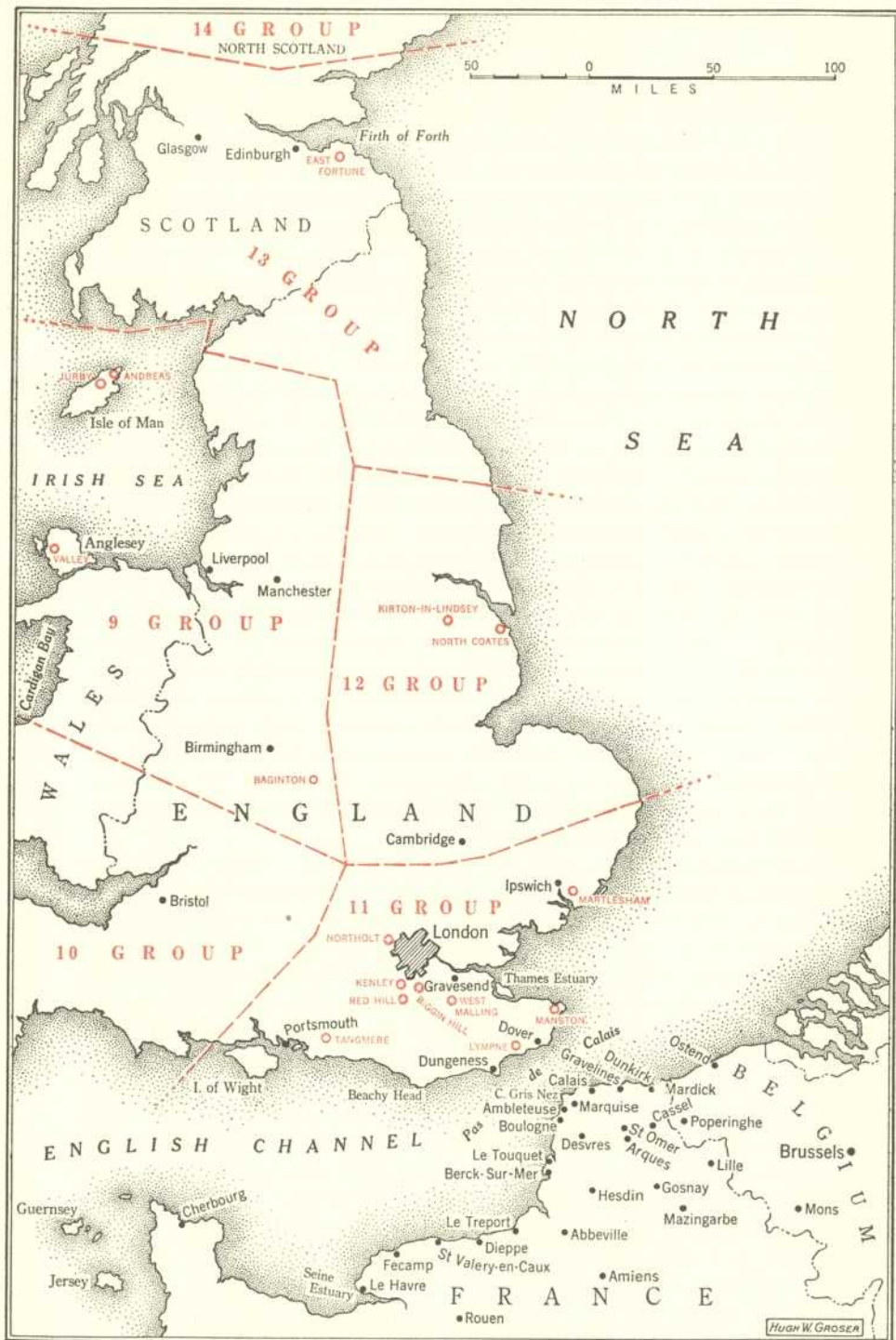
⁵ W Cdr A. G. Douglas, DFC, 70188 RAF. 74 Sqn RAF, 452 Sqn; comd 403 Sqn RCAF 1941-42, 401 Sqn RCAF 1942, RAF Stn Hawkinge 1942, RAF Stn Castle Camps 1942-43, RAF Stn Warmwell 1943. Managing director; of Redhill, Surrey; b. Colwyn Bay, Wales, 27 Mar 1908.

could be intercepted. The only encounter with the enemy was an unhappy one when a Spitfire approaching at dusk to land at North Coates was shot down by an enemy fighter. These operational patrols and many training formation flights gave the pilots experience and confidence in their aircraft (now changed to Spitfire Mark IIA), while frequent gunnery exercises further developed the fighting capabilities of the squadron, so that by early July it was judged ready for offensive duties.

Meanwhile, on 16th June a second R.A.A.F. Spitfire squadron had begun to form at Baginton in Warwickshire. Again the commanding officer, Squadron Leader Brothers,⁶ his two flight commanders, and all ground personnel were supplied by the R.A.F., while the majority of pilots were Australians trained under the Empire Air Training Scheme. By the beginning of August No. 457 Squadron R.A.A.F. was fully operational and moved to Jurby on the Isle of Man. From Jurby and the neighbouring airfield at Andreas patrols and convoy escorts were flown in the Irish Sea, monotonous routine flying unrelieved by any contact with the enemy. On the few occasions when the ever-waiting Spitfires were scrambled to intercept unidentified aircraft they invariably proved to be friendly. These operations, though personally unsatisfying to the pilot, were the lesser of the two tasks No. 457 performed during its stay on the Isle of Man from August 1941 to March 1942. To an increasing extent it acted as a school squadron for Spitfire pilots, and besides training a number of Canadians and Englishmen it supplied operational R.A.A.F. pilots to keep No. 452 fully manned, and also sent some pilots to the Middle East. Although experienced pilots were repeatedly withdrawn No. 457 grew to maturity during this phase, and with the arrival of 110 R.A.A.F. ground staff in October and November 1941 became almost entirely an Australian squadron.

The experience of No. 452, however, was vastly different for it was to be welded together and shaped in the heat of constant operations and combats. Its first offensive engagement on 11th July was undertaken from Kirton-in-Lindsey and necessitated refuelling at West Malling. As part of No. 12 Group Wing supporting a Circus operation, the R.A.A.F. pilots rendezvoused with other fighter wings over Manston at 2.35 p.m. and then crossed the French coast a little to the east of Dunkirk at 2.45. Over Poperinghe No. 12 Group Wing split up into sections of four aircraft in line astern and swept towards Cassel, with the Australians at 18,000 feet to the rear slightly behind No. 266 and No. 65 Squadrons R.A.F. At about 3 p.m., near St Omer, No. 452 was attacked by eight Me-109's diving from port-quarter astern. Finucane warned the Australians of the enemy approach, and, their leader having overshot, Finucane followed the Messerschmitt in its dive and shot it down with a short burst of machine-gun fire at close range. None of the remaining pilots could get into an attacking position, and, being split up, the Aus-

⁶ W Cdr P. M. Brothers, DSO, DFC, 37668 RAF, 32 and 257 Sqs RAF; comd 457 Sqn 1941-42, 602 Sqn RAF 1942; W Ldr RAF Stn Tangmere 1942-43; comd RAF Stns Milfield, Exeter and Culmhead 1944. Regular air force offr; of Manchester, Eng; b. Prestwich, Lancs, Eng, 30 Sep 1917.



Fighter Command: Australian activities, 1941.

tralian made for base. They sighted other enemy aircraft over Gravelines, but these were too distant to be intercepted. Sergeant Roberts,⁷ who was not seen to fall out of formation, had been shot down in the initial combat but parachuted safely to ground and walked to Calais where he found willing helpers. Guided by French resistance workers he travelled by bicycle and train as far as the border of Unoccupied France. There he was apprehended by French police and interned by the Germans, but escaped after a few weeks in company with another airman and seven soldiers, and again contacted the Underground movement. He was finally guided over the Pyrenees into Spain, and was repatriated to England via Gibraltar during October.

Minor routine patrols continued from Kirton-in-Lindsey until 21st July when No. 452 learnt with satisfaction that it was transferring to Kenley in No. 11 Group, and therefore in future would be constantly engaged on offensive operations. On 22nd July the squadron joined No. 602 Squadron R.A.F. in a reconnaissance sweep from St Valery to Le Tréport and the following day operated twice as target-supporting squadron for a Circus operation, without meeting any opposition leading to conclusive combat. On 24th July, however, while forming, with No. 602, the escorting wing for bombers making the second attack that day on Cherbourg, No. 452 was challenged during the withdrawal. Some fifteen miles north of Cherbourg two Me-109 fighters dived steeply on the Australians' starboard section, but Flying Officer Humphrey,⁸ who had recently joined the squadron, quickly destroyed one of them and no further attacks resulted. The remainder of the month passed quietly, for only two major offensive sweeps were mounted and both proved uneventful.

August, however, ushered in a period of great activity for Fighter Command, bad weather alone restricting operations. Circus operations were flown repeatedly, and, as the role of No. 452 in these operations was constantly changing, some brief description of a typical Circus may help in the interpretation of their patrols. The nucleus of a Circus was a box, normally of six light bombers, which although they actually bombed the allotted tactical target, were primarily designed to cause enemy fighter reaction. The bombers were escorted to the target by two fighter wings each of three squadrons, one wing acting as close escort and the other as high cover. Near the target a target-support wing would join company to deflect enemy attacks at a distance, and, failing opposition, to make gun-fire attacks on the target itself. On the way home a rear-support wing would take over prime responsibility for beating off any enemy pursuers. Thus a minimum of twelve squadrons was engaged in every Circus operation while additional squadrons might patrol the route shortly before the main formation, and "mopping-up" squadrons sweep the same area immediately after the operation to catch German fighters still in the air. The

⁷ F-Lt A. C. Roberts, 402007. 607 Sqn RAF, 452 Sqn, 258 Sqn RAF: Air Liaison Offr, Wingate's Long-Range Penetration Gp, Burma 1943-44. Joiner; of Lismore, NSW; b. Lismore, 9 Oct 1916.

⁸ W Cdr A. H. Humphrey, OBE, DFC, AFC, 33543 RAF. 266 Sqn RAF, 452 Sqn, 175 and 6 Sqn RAF. Of Lincoln, Eng; b. Edinburgh, 10 Jan 1921.

Kenley Wing to which No. 452 belonged played some part in most of these August Circuses, and the Australians, who were slowly re-equipping with Mark V Spitfires armed with two 20-mm cannon and four machine-guns, showed remarkable proficiency in combat against German fighters, although the sorties on which their greatest personal victories were gained were not necessarily the most successful operations as a whole.

The month began well on 3rd August when No. 452 led No. 602 on an evening sweep in the Gravelines-St Omer-Ambleteuse area. At 7.20 p.m. five Me-109F's made a very spiritless attack on the leading section, but Finucane and Pilot Officer Eccleton⁹ each claimed to have shot down one of the enemy. Soon afterwards another eighteen Messerschmitts were seen milling around in a loose circle and Finucane led the squadron to attack, himself claiming another enemy aircraft probably destroyed, but other individual combats were inconclusive and the Australians finally withdrew. A Circus operation on 5th August was abortive due to adverse cloud conditions over France; a Channel patrol the following day provoked no enemy reaction, but on 7th August No. 452 engaged in two successful Circuses. In the morning the Australians were part of the close escort to six Blenheims attacking St Omer, and in the afternoon part of the high cover to a similar force bombing an electric power house at Lille Sequedin, and though they themselves had no combats, the target-support squadrons in each case achieved victories.

On 9th August No. 452 had better fortune for it was detailed as part of the target-support wing for an attack on Gosnay. Flying at 19,000-20,000 feet throughout, the Australians were split up by attacking enemy formations as soon as they crossed the French coast at Mardick at 11.11 a.m. Red and Yellow sections led by Finucane and Pilot Officer Thorold-Smith¹ were first engaged by about thirty Me-109's, after which dog-fights developed all over the sky and a total of 100 enemy aircraft were estimated to be in action against the whole wing. A confused but lively combat continued all the way to the target and back to the French coast, No. 452 claiming five enemy aircraft destroyed for the loss of three Spitfires and damage to another, which, although it had its airscrew shot away, successfully reached Lympne in Kent. Finucane whose prompt reaction and leadership during the initial attack gave the starboard sections (Red and Yellow) a great tactical advantage, shot down one Messerschmitt and shared with Thorold-Smith and Sergeant Chisholm² in the destruction of two more. Chisholm also joined Pilot Officer Lewis³ in shooting down a fourth aircraft and Pilot Officer Truscott⁴ accounted for the fifth.

⁹ F-O W. D. Eccleton, 402232; 452 Sqn. Clerk; of Darlinghurst, NSW; b. Levin, NZ, 22 Feb 1916. Killed in action 19 Aug 1941.

¹ Sqn Ldr R. E. Thorold-Smith, DFC, 402144; comd 452 Sqn 1942-43. Medical student; of Manly, NSW; b. Manly, 30 Jun 1920. Killed in action 15 Mar 1943.

² F-Lt K. B. Chisholm, MC, DFM, 402159; 452 Sqn. Dental student; of Petersham, NSW; b. Sydney, 22 Dec 1918.

³ F-O D. E. Lewis, 400148; 452 Sqn. Engineering student; of East Malvern, Vic; b. Hobart, 1 Feb 1922. Killed in action 22 Jan 1942.

⁴ Sqn Ldr K. W. Truscott, DFC, 400213. Comd 452 Sqn 1942, 76 Sqn 1942-43. Clerk; of South Yarra, Vic; b. Prahran, Vic, 17 May 1916. Killed in aircraft accident 28 Mar 1943.

Both Lewis and Truscott, who had followed their victims down to low level, machine-gunned ground targets in Boulogne from which heavy anti-aircraft fire had been experienced while the wing crossed the coast.

On 12th August No. 452 took part in two of three Circuses flown that day to divert enemy fighters from the Cologne area, where Bomber Command intended to mount a heavy daylight attack; and two days later the Kenley squadrons acted as close-escort wing to Blenheims bombing the E-boat base at Boulogne, but these operations passed off uneventfully.⁵ Early on 16th August during a sweep by the Kenley and Biggin Hill Wings over northern France, Finucane saw eight enemy fighters diving to attack No. 485, so he quickly climbed from his own formation, intercepted one of the enemy, and shot it down. None of the Australians claimed any success, but they had a further chance to distinguish themselves the same evening when Kenley Wing flew as close escort to bombers attacking St Omer. About fifty enemy aircraft were seen, and as the Circus was recrossing the French coast, Messerschmitt attacks penetrated the outer screen, and No. 452 became engaged in a short but hot battle, which is succinctly described in Finucane's combat report:

I was 452 sqdn leader. We were top cover to 602 and 485 sqdns. A number of enemy aircraft were sighted on way to the target. On the return from the target 10-15 enemy aircraft were sighted diving down on the rear of 602 squadron. I dived down and intercepted a Messerschmitt 109. The attack was broken up, Red 2 (Sgt E. B. Tainton⁶ 402009) and Yellow 2 (Chisholm) followed and we carried out a few attacks without result. About 15 miles north-east of Boulogne a number of enemy aircraft were sighted. These were attacked and I gave a three second burst to the rear one, a Messerschmitt 109F from about 75 yards on a quarter attack. The enemy aircraft went down with smoke and flames coming from it. Meanwhile Tainton and Chisholm had become separated from me. The bulb in my sight went unserviceable and whilst I was changing it, I was hopped on by two Me-109's. Tainton warned me and I attacked rear one without any sight. I did a full beam attack and from ten yards range blew his tail unit clean off. On my port side Tainton attacked a Me-109E and sent it down in flames. Chisholm attacked a Me-109 from quarter astern and was in turn attacked by three Me-109's. I warned him he was being shot at and whilst doing so observed his enemy aircraft going down which crashed in a field. Soon afterwards I saw a Spitfire shoot down a Me-109 which crashed into the ground and the Spitfire was later identified by me as Chisholm's. I and other members of the squadron also saw a Me-109 crash just inside the coast on the return journey. It left a long trail of smoke behind it [and] . . . was the enemy aircraft shot down by P/O Truscott.

In addition to the six Messerschmitts claimed above, Sergeant Stuart⁷ also destroyed one of the fifteen enemy aircraft which made the opening attack on No. 602, his victim being seen to crash by Truscott, and all the other Australian pilots made attacks in the general mêlée. The most satisfactory aspect was that on this occasion No. 452 suffered no loss for this brilliant achievement, while their combat tactics had improved.

Two more Circuses followed on 18th August, in the morning uneventfully against Fives-Lille and in the afternoon against Marquise, when four

⁵ At the time 452 RAAF, 485 RNZAF and 602 RAF Sqns formed the Kenley Wing.

⁶ F-Lt E. B. Tainton, 402009. 452 Sqn, 607 Sqn RAF, 76 Sqn. Wool appraiser; of Double Bay, NSW; b. Sydney, 23 Sep 1919.

⁷ F-Lt A. R. Stuart, 402141; 452 Sqn. Accountant; of Sydney; b. Sydney, 28 Sep 1918.

enemy fighters dived to attack the Australians from above. Only Finucane was able to fire a short burst at one of the attackers, the speed they had attained in their dive enabling them to escape. Much heavier opposition was encountered the following day however when Kenley Wing acted as high escort cover for Blenheims attacking Gosnay power-station. Squadrons proceeded in sections, line abreast, No. 452 to port at 20,000 feet, No. 485 to starboard at 17,000 feet and No. 602 leading in the centre at 15,000 feet. As soon as the French coast was crossed enemy aircraft, finally thought to aggregate about 100, began to converge on the Circus. Before reaching the target one Messerschmitt dived to attack Pilot Officer Willis⁸ who was slightly wounded, and with a damaged aircraft forced to break formation and return to base. Truscott, however, who had profited from the previous day's experience, half-rolled and dived after the Messerschmitt and, opening fire at 100 yards' range, saw a section of the enemy's port wing fly off, after which it dropped vertically into cloud at 4,000 feet apparently out of control. Truscott rejoined the squadron which was hotly beset, continuous enemy attacks splitting up the sections which fought their way back from the target in defensive circles. Two Australians were shot down and Douglas had his Spitfire badly holed, but Finucane leading Red Section to intercept enemy attacks as they developed, shot down one aircraft observed to crash in France, and probably destroyed another last seen low down over the English Channel.

An air-sea rescue search on 21st August and an offensive fighter sweep on 24th August provoked no reaction, but enemy fighters again rose in strength to oppose a Circus attack on St Omer airfield on the evening of 26th August. After crossing the French coast, the Kenley squadrons acting as high cover were attacked continually, both on the way to the target and while withdrawing, by Messerschmitts which dived in threes and sixes out of the sun. The Australians continued to escort the Blenheims which were unharmed, but Douglas and Stuart each claimed victories over enemy aircraft which ventured too close, both Messerschmitts being left smoking in uncontrolled vertical dives. Early next morning the same target was again nominated, but the bombers failed to make rendezvous, so the Kenley, Northolt, Tangmere and Biggin Hill Wings commenced an independent sweep over the Pas de Calais. They were recalled soon after crossing into France at 7.12 a.m., but contact with the enemy had already begun, and, in running fights which continued half way back to England, Finucane and Thorold-Smith each shot down two Me-109's, all four being seen to fall in the sea.

Three more Circus operations and air cover to light naval units in the Channel gave no further opportunity during August for No. 452 to engage the enemy, but it had already created a remarkable record for a squadron so recently formed and composed almost entirely of new-fledged pilots. It was credited by contemporary assessments with twenty-two enemy aircraft destroyed and a further three probably destroyed, the highest score

⁸ F-O W. D. Willis, 400166; 452 Sqn. Clerk; of Canterbury, Vic; b. South Yarra, Vic, 26 Apr 1917. Killed in action 18 Sep 1941.

that month in Fighter Command, and although almost half of these successes fell to Finucane, yet with every engagement the Australians were profiting from experience and brilliant leadership, and taking an increasing part in the fighting themselves.⁹ The general air struggle continued unabated, and on 2nd September No. 452 had a busy day. Two sorties on convoy patrol and a "scramble" to intercept an aircraft eventually identified as friendly, were followed late in the forenoon by a Roadstead attack on shipping near Ostend. Three Blenheims and a few Hurricane bombers comprised the striking force and were escorted by a wing consisting of Nos. 242, 452 and 485 Squadrons. Ship and shore anti-aircraft defences were extremely active and on the approach one of the Blenheims was shot down. The other bombers, however, claimed the sinking of a 5,000-ton vessel and a small anti-aircraft "flakship". As the formation withdrew Willis saw one Blenheim returning at sea-level without escort. Accordingly he and Stuart broke away to protect it as its slipstream was churning up the water, leaving a long white trail which was bound to attract enemy fighters. Within two minutes a pair of Messerschmitts arrived to attack but both were intercepted and shot into the sea. The Spitfires then returned independently having lost sight of the Blenheim.

A successful Circus operation against Mazingarbe power station on 4th September, though uneventful for No. 452, resulted in other squadrons shooting down ten enemy aircraft and claiming an additional ten as probably destroyed. A fairly long period of bad weather then intervened and kept all fighter squadrons virtually grounded until 16th September. A small amount of training during which No. 452 lost two of its new pilots who collided in mid-air, and an abortive Rhubarb attempted by Douglas and Truscott on 11th September constituted the only flying done by the Australians, who, however, were enabled to overhaul squadron organisation, a large proportion of the R.A.F. ground crews having recently been replaced by relatively newly-trained R.A.A.F. personnel. When flying resumed on the 16th No. 452 joined in a twin-wing sweep and the following day took part in two Circuses, one of them on an unusually large scale. The morning attack on Mazingarbe, which was becoming a routine target, was made by twenty-three Blenheims supported by no less than twenty-five fighter squadrons, and the afternoon attack on the normal scale was directed against Marquise. On none of these patrols did the Australians meet any opposition, but their turn came on 18th September when detailed with Nos. 485 and 602 as close escort to twelve Blenheims attacking Rouen.

The Kenley Wing formed up correctly but, on joining the bombers over Beachy Head at 2.30 p.m., found a Hurricane squadron, detailed for a different operation, already in close company with the forward box of six Blenheims. No. 452 took station on the rear box but were pushed away as the Hurricanes began to string out backwards over both forma-

⁹ The full "score" of aircraft destroyed by 452 Sqn to the end of Aug 1941 was: F-Lt B. E. Finucane, 10; Sgt K. B. Chisholm, 3; P-O R. E. Thorold-Smith, 2½; P-O K. W. Truscott, 2; Sgt A. R. Stuart, 2; F-Lt A. G. Douglas, RAF, 1; F-O A. H. Humphrey, RAF, 1; P-O W. D. Eccleton, 1; Sgt E. B. Tainton, 1; P-O D. E. Lewis, ½.

tions, and the Australians were forced into the unwieldy expedient of flying divided into flights in line astern, one either side and above the bombers. Just before the target was reached the left-hand, close-escort squadron closed in and forced "B" Flight of No. 452 up to the top of the escort wing. The bombers turned to starboard after the attack leaving "B" Flight isolated on the outside of the turn. Numerous enemy fighters were above and the pre-arranged top cover was not in sight with the result that by a continuous series of attacks from above the Messerschmitts drew "B" Flight back from the rest of the fighter "beehive" and held them at a great numerical disadvantage. From this point a series of dog-fights ensued, "A" Flight moving across to aid "B" Flight but the whole squadron eventually becoming split into individuals or pairs. In opportunist attacks, Thorold-Smith, Chisholm, Douglas and Truscott each destroyed one enemy aircraft, while Truscott claimed another as probably destroyed and Sergeant Wawn¹ two as damaged. Although Bungey made no claim, he fired several times at enemy aircraft and helped to deflect the initial assault on "B" Flight. Four Australians failed to return from this operation fought under such difficult circumstances.

No. 452 was again out in strength on 20th September when three coordinated Circuses were mounted against railway and shipbuilding yards in northern France. The Kenley Wing led by Bungey was detailed as high cover over Abbeville and again met very determined opposition from some fifty Messerschmitts as the bombers neared the target in clear visibility. No. 452 broke up into sections to counter successive attacks and a general mêlée ensued during which Finucane claimed three, Truscott two and Chisholm and Sergeant Dunstan² each one enemy fighter destroyed, while Truscott damaged a further Messerschmitt and Sergeant Elphick³ damaged two. On this occasion the squadron's own losses were not so severe, one Spitfire failing to return. The following day an even more signal victory was gained, when five enemy aircraft were destroyed and two damaged without loss. Kenley Wing was detailed as high cover in an attack on Gosnay but failing to meet the bombers, Bungey led the three squadrons out over Dungeness and into France at Le Touquet. There the wing orbited, still searching for the Blenheims, and finally proceeded towards the target, being shadowed by enemy fighters. At 3.20 p.m., over Desvres a considerable number of Messerschmitts were encountered and for the next ten minutes a furious battle raged commencing at 20,000 feet but in the case of some combats continuing down to ground level. Finucane was again leading scorer with two victories, Truscott, Chisholm and Wawn accounting for the three other enemy aircraft destroyed, while Chisholm and Lewis each damaged one.

¹ F-Lt C. N. Wawn, DFC, 400163. 111 and 92 Sqn RAF, 452 and 76 Sqn. Grazier; of Langkoop, Vic; b. Melbourne, 5 Nov 1910.

² Sgt B. P. Dunstan, 1256932 RAF. 452 Sqn, 41 Sqn RAF. Plumber's mate; of Torquay, Eng; b. Chelsea, Vic, 1 Sep 1920. Killed in action 12 Feb 1942.

³ F-Lt J. R. H. Elphick, 402157. 111 Sqn RAF, 452 and 76 Sqn, 113 and 115 Air-Sea Rescue Flights. Bank clerk; of Lismore, NSW; b. Cootamundra, NSW, 28 Feb 1919.

These three days of magnificent successes were again followed by a lull in activity. Fog and bad weather interrupted operations until 26th September when an uneventful Rhubarb was flown by four aircraft, and only one more Circus was attempted during the month, when, although the target was Amiens marshalling yards, no enemy opposition was met. Squadron spirits remained high for No. 452 was again pre-eminent among Fighter Command squadrons with eighteen enemy aircraft claimed destroyed during the month, and the posting of Douglas to command a squadron, an honour richly deserved by his zeal for training and his skill in leading "B" Flight, permitted the elevation of an Australian to his place. Truscott, whose determination and judgment had become increasingly apparent with every engagement, was chosen. It was realised that with the onset of winter it would be increasingly difficult because of adverse cloud and general weather conditions to maintain Circus operations on the same scale as in previous months, but the Australians, nevertheless, keenly anticipated opportunities for further battle. The pilots appreciated that every time the enemy was attacked over his own vital air space, he was losing some measure even of his local air supremacy and consequently his ability to exercise his air power to the full. This cold satisfaction mingled in their hearts with the springing feeling of joy, pride, and personal endeavour which lies at the root of all individual combat. There was no doubt that the squadron had reached full maturity and even replacement pilots quickly became imbued with this élan, the precious corporate spirit of daring and tenacity which at the cutting edge of battle denotes the true fighter. Much of this elemental temper had been absorbed unconsciously from the experienced courage of Bungey and from Finucane's instinctive battle sense, but the fire innate in all of them burned brighter with every opportunity.

The meteoric rise to prominence of No. 452 owed much, as has been stated, to the complete confidence which the pilots placed in Bungey's training and administrative leadership.⁴ They were fortunate, too, in coming fresh to the battle at a time when Fighter Command was firmly seizing the initiative, and when the tactical situation was favourable. Raw as they were initially, these men were the pick of the first fruits of the E.A.T.S. and, partly self-consciously but entirely whole-heartedly, they regarded themselves as the vanguard of Australian effort in the air. It was undoubtedly Finucane who turned these other assisting factors into the final success by which so brilliant a fighting team was rapidly created. Young and yet a veteran of the Battle of Britain, light of heart but serious minded, eloquent only in action, utterly fearless, and of strong imaginative character, he easily evoked the best that lay within his apt Australian pupils. He had studied the technique of combat flying very deeply and in addition to his practical leadership, gave lucid and brilliant explanations of tactics which were then meticulously practised until the Australians acquired something of his own instinctive reactions. He was very loyal

⁴In contrast was the unhappy experience at this time of 453 Sqn in Malaya. See D. Gillison, *Royal Australian Air Force, 1939-42* (in this series).

to his companions and had too the generosity and absence of bitterness of the fighting man.⁵ He left a vivid commentary on the personal experience and feelings of fighter pilots when he said at this time:

Before going off on a trip I usually have a funny feeling in my tummy, but once I'm in my aircraft everything is fine. The brain is working fast, and if the enemy is met it seems to work like a clockwork motor. Accepting that, rejecting that, sizing up this, and remembering that. You don't have time to feel anything. But your nerves may be on edge—not from fear, but from excitement and the intensity of the mental effort. I have come back from a sweep to find my shirt and tunic wet through with perspiration.

Our chaps sometimes find that they can't sleep. What happens is this. You come back from a show and find it very hard to remember what happened. Maybe you have a clear impression of three or four incidents, which stand out like illuminated lantern slides in the mind's eye. Perhaps a picture of two Me-109's belting down on your tail from out of the sun and already within firing range. Perhaps another picture of your cannon shells striking at the belly of an Me. and the aircraft spraying debris around. But for the life of you, you can't remember what you did. Later, when you have turned in and sleep is stealing over you, some tiny link in the forgotten chain of events comes back. Instantly you are fully awake, and then the whole story of the operation pieces itself together and you lie there, sleep driven away, re-living the combat, congratulating yourself for this thing, blaming yourself for that. The reason for this is simply that everything happens so quickly in the air that you crowd a tremendous amount of thinking, action and emotion into a very short space of time, and you suffer afterwards from mental indigestion.

The tactical side of the game is quite fascinating. You get to learn, for instance, how to fly so that all the time you have a view behind you as well as in front. The first necessity in combat is to see the other chap before he sees you, or at least before he gets the tactical advantage of you. The second is to hit him when you fire. You mightn't have a second chance.

No. 452 took part in a large-scale sweep over France on 1st October and the next day Kenley Wing took off for an evening Circus operation. The bombers were recalled because of unfavourable weather soon after making rendezvous, but the fighter wings made an offensive sweep. Enemy attacks began over France and a running fight continued several miles out to sea. Finucane's leading section was continuously engaged, he himself claiming one victim, and his No. 2, Sergeant Cowan,⁶ another. No further operations took place until 12th October when a special Circus operation was flown, twenty-three Blenheims effectively bombing the docks at Boulogne. No. 452 flew in one of the two wings provided for target support and many individual dog-fights resulted. Truscott damaged two aircraft and Finucane shot down one but Chisholm failed to return.

In Chisholm the squadron lost a pilot of outstanding ability who had contributed greatly to its record of achievements. His subsequent exploits, though outside the battle proper, may serve to indicate the character of these early non-professional pilots. Chisholm parachuted into the sea near Berck-sur-Mer, was picked up by a German launch, and after temporary confinement at various places was sent towards

⁵ His identity of interests with the RAAF pilots was very great and he spoke frequently of settling in Australia (as an accountant) after the war. Of Truscott he said: "He came from Melbourne to England and I came from Dublin to England and in the first moment of our meeting the perfect friendship, which will not finish with the war, began." But neither survived.

⁶ F-Lt R. J. Cowan, 404087. 452 and 75 Sqns; comd 78 Sqn 1945. Clerk; of Brisbane; b. Brisbane, 13 Jun 1918.

the end of the month to a prisoner-of-war camp at Lamsdorf. Here he met Stuart who had been shot down on 18th September and during the winter they prepared a plan to escape.

In April 1942 they changed identities with two soldiers so that they could join a working party, and soon after, under their new names, were detailed to repair railway lines near Freudental. The prisoners were billeted in an old mill and another fourteen soldiers were enlisted in an effort to escape. This was made early in June through a ventilator beneath the floor boards which had previously been pulled up and loosely replaced. Arrangements to reunite some distance away broke down and Chisholm with two soldiers set out for Prague where they hoped to find help. They walked to Brno, moving only by night, and had great difficulty in obtaining help on the way as the Gestapo were very active in Czechoslovakia after the assassination of Heydrich the Reich "Protector" of Bohemia and Moravia. In the outer suburbs of Brno they sought shelter in a house but were betrayed to the Germans, imprisoned, and finally returned to Lamsdorf. Here while awaiting sentence for his escape, Chisholm by a subterfuge managed to be transferred to the camp hospital and immediately concerted another plan to join a working party near Gleiwitz airfield in the hope of stealing a German aircraft. This plan involved an elaborate second change of identity, this time with a New Zealand soldier, and then, in company with three other pilots and a soldier co-opted because of his knowledge of central-European languages, Chisholm successfully arranged to be included in a working party for Gleiwitz. Before the original plan could be carried out, the absence of the two officers of the party (Wing Commander Bader⁷ and Flight Lieutenant Palmer⁸) from the prison hospital led to a widespread search and they were apprehended at Gleiwitz, without, however, Chisholm or the other two conspirators being discovered.

Chisholm now decided to escape into Poland, and on 11th August 1942 he and three others escaped from the Gleiwitz working camp through a boiler room to which they had made a skeleton key. They marched south-east for four nights and then east meeting friendly Poles on the sixth day. For two months they remained on farms near Osweicim and then were taken to Cracow to the home of a leader of the Resistance Movement. A plan to be taken as medical patients through Slovakia into Hungary and thence to Turkey was prepared but abandoned when an alleged British agent arrived saying he had orders for the party to proceed to Warsaw. Here the four escapers separated, and Chisholm lived from October 1942 until March 1943 in the home of a Polish family while arrangements to pass him across Europe were completed. In April 1943 the Gestapo discovered and arrested key agents of the Warsaw-Paris "underground railway", and finally in July 1943 Chisholm was told that he would have to make his own travelling arrangements, but that he could still be helped with false papers, money, and any necessary disguise.

Chisholm now rejoined one of his original companions and in October met two fugitive Belgian workmen, who, in return for forged rail passes, were to smuggle them to Belgium. While still awaiting new Belgian identity cards, Chisholm's companion was arrested but again Chisholm was not caught. The Belgians abandoned the plan, one taking a job in Warsaw, and the other, having obtained the forged rail pass, going off alone. Undaunted, Chisholm found two Dutchmen willing to join him in the attempt to reach Belgium, but again, before they could start, one of the Dutchmen, while walking with Chisholm, was challenged by police who were checking identity papers. Chisholm threw the policeman into the Vistula, but the Dutchman, whose identity was now known, had to withdraw, and urged the other two to go on alone. Finally on 23rd March 1944 Chisholm and the remaining Dutchman left Warsaw on the military train for Brussels via Berlin. The following

⁷ Gp Capt D. R. S. Bader, DSO, DFC, 26151 RAF. 19 and 222 Sqns RAF; comd 242 Sqn RAF 1940-41; W Ldr RAF Stn Tangmere 1941. Aviation petrol rep; of London and Doncaster, Yorks, Eng; b. St. John's Wood, London, 21 Feb 1910. On 14 Dec 1931, as result of flying accident, Bader lost both legs, and was discharged from the RAF 30 Apr 1933. On 26 Nov 1939 he rejoined with the rank of flying officer.

⁸ F-Lt J. J. Palmer, 404402 RNZAF. Farmer; of Hastings, NZ; b. Napier, NZ, 4 Jul 1918.

day was spent in Berlin visiting cinemas, viewing bomb damage and dining in restaurants; then they rejoined the military train. So far their papers had passed muster, but at Venlo in Holland they were suspect, and so Chisholm and his companion returned to Aachen, where after further delay they crossed the frontier and reached Brussels. After a month a guide was secured to lead them into France and on 10th May they reached Paris. Chisholm stayed with the family of a French policeman until the outbreak of hostilities in Paris between the French Forces of the Interior (Underground Army) and the Germans. He joined the F.F.I. and fought in the streets until Allied forces occupied the city and he was at last able to return to England on 30th August 1944. For more than two years he had by tenacity, effrontery and resilience kept himself free in enemy territory and despite repeated failures as his successive plans neared fruition, had finally surmounted all difficulties and escaped completely.

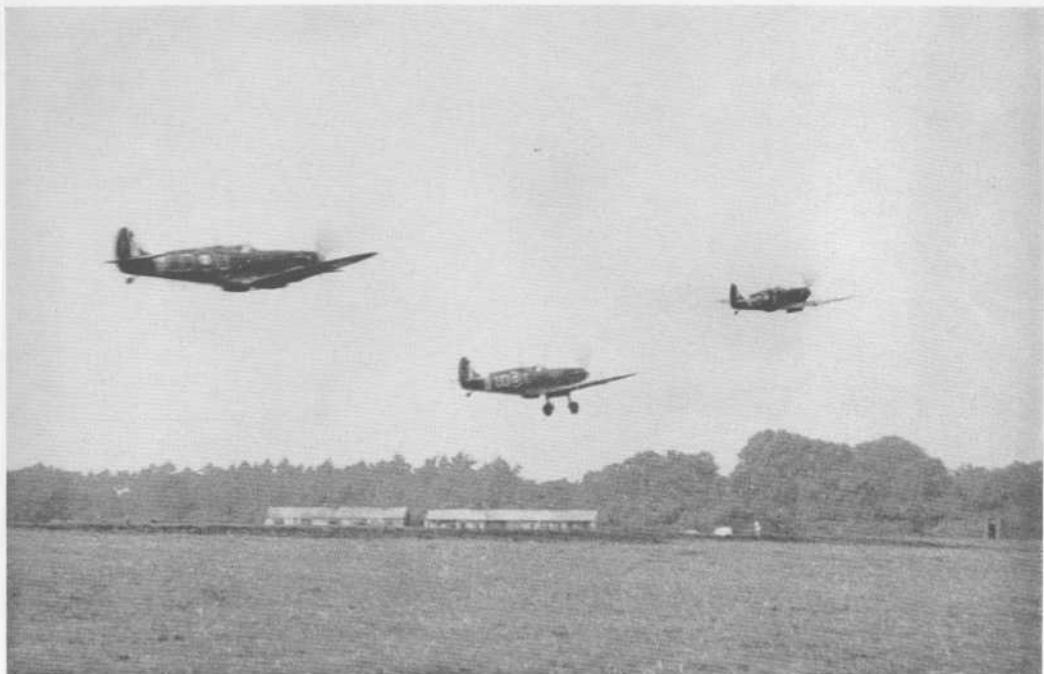
This odyssey was only beginning when No. 452, on 13th October 1941, engaged in one of its most exciting and successful operations while flying as close escort to four Blenheims in an early afternoon raid against Arques. Five miles from the target a very determined attack was made on the bombers by enemy aircraft and No. 452 received permission to break formation to beat off these attackers. This was done, but as soon as the squadron resumed escort, further attacks developed and the Australians were quickly involved in individual dog-fights during which six Messerschmitts were claimed destroyed and one probably destroyed in addition to three damaged. Truscott and Finucane (each two), Thorold-Smith and Sergeant Emery⁹ were the successful pilots, while Sergeant Schrader¹ claimed the probable. The squadron lost one pilot killed in this action, and in addition Elphick's Spitfire was hit and he had to bale out near the English coast. Thorold-Smith and Truscott circled over him so that the exact position could be determined by ground radar stations, and he was soon afterwards picked up by an air-sea rescue launch.²

The weather prohibited further operations until 21st October, the day No. 452 moved to Redhill. They still operated as part of Kenley Wing and during a sweep over the Pas de Calais that day Thorold-Smith and Truscott both fired their guns in fleeting engagements with six Messerschmitts but made no claim. One more Circus, and a few attempts to carry out small Rhubarb sorties, followed in the course of the month but resulted in no action. The inclement weather continued into November, and though No. 452 flew to Martlesham on 4th November, Kenley acted as escort to three Tomahawks which were directing the fire of the Dover coastal batteries across the Channel. The Spitfires were at 12,000 feet near Cap Gris Nez when attacked at approximately 2.45 p.m. by some twenty enemy aircraft, the initial dive attack being made by six Messerschmitts. Thorold-Smith turned his section hard to port to engage these and scored effective strikes on one Messerschmitt. Then looking over his shoulder he found a radial-engined Focke-Wulf 190 attacking him from fifty yards

⁹ Sgt J. M. Emery, 407116; 452 Sqn. Clerk; of Whyalla, SA; b. North Adelaide, 8 Mar 1914. Killed in action 8 Dec 1941.

¹ Sgt E. H. Schrader, 400135. 111 Sqn RAF, 452 Sqn. Wool classer; of East Malvern, Vic; b. Toorak, Vic, 9 Oct 1920. Killed in action 6 Nov 1941.

² Aircraft could switch their IFF sets to a special setting, reserved for aircraft in distress, which produced a characteristic response on radar screens.



(Associated Press, London)

A section of Spitfires from No. 452 Squadron taking-off from Kenley airfield for France, September 1941.



(Associated Press, London)

Pilots of No. 452 Squadron on return from a fighter sweep over France in September 1941. Facing the camera, left to right: F-Lt B. E. Finucane, Sgt K. B. Chisholm, Sqn Ldr R. W. Bungey. Finucane's Spitfire (bearing shamrock) is in the background.



(R.A.A.F.)

Pilots of No. 452 Squadron in the dispersal hut at R.A.F. Station Kenley, late 1941. Left to right, background: P-O R. H. C. Sly; Sgts R. H. Bevan, W. J. Wilkinson, J. R. Ross, J. M. Morrison; foreground: Sgts D. F. K. Downes, K. D. Bassett; F-Lt K. W. Truscott; P-O D. F. Evans; F-Sgt Baldwin (R.A.F.); P-O R. H. Whillans.

on the fine port quarter, having already shot down his No. 2. Continuing the turn to port Thorold-Smith pulled up firmly into a very steep climbing turn, throttled back and flicked into a vertical turn in the opposite direction, so that the enemy was then below, slightly ahead and crossing him from port to starboard. He did a diving starboard beam-to-quarter attack, opening fire in short bursts at 300 yards, and closing to 200 yards when pieces began to fly from the FW-190's engine cowlings and tail unit; it went into a vertical dive leaving a black smoke trail. Thorold-Smith followed down to 5,000 feet in case this was a feint breakaway but saw the enemy crash into the sea about eight miles north-west of Cap Gris Nez. Only one FW-190 apparently was present but Truscott and Bungey each claimed a victory against Me-109's, while other pilots, unable to see conclusive results from apparently effective attacks, claimed another three as damaged. Two Australians failed to return.

No. 452 was again in action two days later when a Circus operation was projected against Lille. Confusion was caused among the supporting fighters when six of the twelve Blenheims turned back en route, and the remaining bombers attacked a factory near Mons instead of going to Lille. Kenley Wing attempted to form high cover to a rather muddled bee-hive formation, and while returning towards the French coast the starboard section of No. 452 was attacked. Truscott, who was leading, pulled round hard to meet this and fired from very short range at the foremost Messerschmitt achieving cannon hits in the engine and around the cockpit. This enemy aircraft seemed to explode and dropped in an uncontrolled vertical dive. Truscott's attention was immediately taken by other enemy attackers and he fired without apparent effect at three of them. By this time he had dropped to the rear of the Circus which had just crossed the coast and he saw two Messerschmitts diving down on two Spitfires. Warning his comrades, he made to intercept the enemy machines which broke away to starboard, but he was able to follow the second one and firing from dead astern with a five-second burst of cannon fire blew away the complete tail unit of the enemy which flicked over and went down vertically. At the same moment he felt his own Spitfire shudder and saw bursts on the starboard wing, so quickly pulled away to port and dived out of danger. He made direct for the English coast, but realising that his petrol supply was failing, climbed to 3,000 feet, when fore-and-aft control of his aircraft failed. Truscott baled out into the sea, but was rescued about an hour later with Dunstan who had also been shot down. Another pilot crash-landed near Gravesend having run out of petrol.

This was the last Circus operation of 1941 engaged in by No. 452. Coordination of bombers and fighters in bad weather had become progressively more difficult, and Ramrod and Roadstead operations, in which Hurricane bombers acted as striking power, replaced the Circuses. Even these were infrequent as weather severely limited flying, the Australians joining in only two: the first on 18th November against an alcohol distillery at Hesdin and the other on 27th November against shipping at Boulogne.

No large-scale operations of any kind occurred during December, a bitter disappointment to the Australians whose natural anxiety concerning the extension of war to the Pacific needed to be sublimated in action. Protection of mine-layers, convoy escort and one uneventful sweep accounted for most of the 82 operational hours flown, a severe reduction from 137 in November and but a fraction of the 445 during the preceding August. Only one fight resulted, when thirteen Spitfires which were escorting two rescue launches south of Dungeness were engaged shortly after midday on 8th December by FW-190's; while preoccupied with these, a further three Focke-Wulfs dived down to attack, scattering the Spitfires. In the resultant mêlée four of the Australians fired at enemy aircraft without being able to observe results, but Emery failed to return, being last seen chasing an FW-190 with two enemy aircraft on his tail. Although getting somewhat the worse of this fight No. 452 profited from an early encounter with the new enemy fighter which appeared faster both in diving and climbing than the Spitfire, which had hitherto maintained progressive superiority over the various types of Me-109.

While in 1941 Fighter Command was employing its single-engined aircraft to prosecute an increasing offensive over enemy territory, it was still vitally concerned with the defence of Great Britain against enemy air attack by night. The German night offensive which had reached its highest peak in the attacks on London in mid-September 1940, finally settled into the long spasmodic bombing of provincial cities as well as London throughout the winter and spring of 1941. Although, after the attack on Russia on 22nd June, the *Luftwaffe* night effort was to fall in July below 1,000 sorties, and to fall lower still in succeeding months, this could not be foreseen and the most pressing defensive need early in 1941 was obviously some means of mitigating the severity of night bombing. There was an important expansion in all passive defences (anti-aircraft guns, searchlights, balloon barrages, decoy targets, camouflage, radio interference and jamming) but to provide the most efficacious means of destroying bombers before they reached their objective, more and more night-fighter squadrons were required. In the consequent expansion of Fighter Command, one R.A.A.F. night-fighter squadron was formed on 30th June 1941 according to the provisions of *Article II* of the Empire Air Training Scheme Agreement of 17th April 1941.³

The pre-conditions of successful combat at night were up to a point the same as those for day fighting: an adequate early-warning system, accurate and up-to-date plots of raids, radio-telephony for direct control (from the ground) of fighters in the air, and finally a satisfactory type of aircraft in sufficient numbers. However, a far greater degree of precision was required. By day any defensive formation up to wing size (thirty-six aircraft) could be controlled as easily as a single aircraft, and an enemy force by day constituted a conspicuous target to be picked

³ This gave precision to the principle stated in *Article XV* of the main Ottawa Agreement of Dec 1939.

up by any one of the fighter pilots patrolling. At night, however, each single fighter needed to be controlled as a separate unit and directed on to the individual raider, no matter how many fighters or bombers were operating. This problem was resolved in stages mainly by a number of special applications of the radar principle: the ground control interception station (G.C.I.), the airborne aircraft interception set (A.I.) and airborne identification friend-or-foe set (I.F.F.), all of which in varying degrees of perfection were available by mid-1941. The first enabled a ground controller to direct his fighter to the vicinity of a raiding force and put the pilot in a position suitable for interception of a particular enemy aircraft. The A.I. set operator would then obtain a contact on his cathode-ray tube screen and give detailed directions to the pilot to enable him to close and obtain visual sense of the enemy in circumstances of tactical advantage. The I.F.F. set was a device enabling the ground controller to distinguish his fighter from any other aircraft whose presence might be indicated on the ground apparatus, an indispensable condition for controlled interception. Lastly, in 1941, after many difficulties both of design and supply, a satisfactory night-fighter aircraft, which was speedy enough to overtake enemy bombers rapidly, large enough to carry pilot, observer, and the bulky radar apparatus, and an armament of heavy fire power, and possessed a patrol duration of several hours, had at last been found in the Bristol Beaufighter. Originally Blenheims and single-engined fighters had been employed, and later the turret-equipped, single-engined Boulton-Paul Defiant, but each lacked one or more of the essentials of the ideal night fighter and had limited success in action.

Thus when No. 456 Squadron began to form at Valley airfield on the Isle of Anglesey under the command of Squadron Leader Olive on 30th June 1941, a period of rapid development in the organisation and technique of night-fighting was in progress. The squadron was located in No. 9 Group, a quiet area where it could pursue with a minimum of interruption the inevitably slow process of training in such highly-specialised and difficult air operations as night-fighting involved. The first months of No. 456's existence were naturally formative, and at the beginning all aircrew and ground crew were provided by the R.A.F. with the intention of replacing them by R.A.A.F. men as they became available. The original aircraft were Defiants, and as no R.A.A.F. pilots had yet completed courses at No. 60 Operational Training Unit, East Fortune, there was not, as in the case of Nos. 452 and 457, a pool of Australians ready to man the new squadron. R.A.A.F. ground crews totalling 180 men arrived during September 1941, but formed only about half of the full complement, while in the air the squadron remained almost exclusively English. One Australian observer joined during July, sixteen R.A.A.F. gunners in August, eleven R.A.A.F. pilots and gunners during October, but all these required long training, especially when in October Beaufighters began to replace the Defiants and the gunners became redundant until they had been retrained as "Observers, Radio".

No. 456 became officially operational in Defiants on 5th September, and thereafter night-fighter patrols on a limited scale were carried out as normal routine. Valley airfield with five long runways and unobstructed approaches was one of the best in Britain and was conveniently situated for the defence of the industrial areas in Lancashire, particularly from raiders approaching up the Irish Sea. With the preoccupation of the *Luftwaffe* in eastern Europe, however, enemy activity in this area fell away almost to nothing, and No. 456, like No. 457 at Andreas, became acutely conscious that they were in a backward area. No incidents at all occurred during the Defiant patrols, and though the change to Beaufighters and the introduction of radar ground-controlled interception brought promise of more fruitful employment, throughout October, November and December 1941, the Beaufighters continued night operations under sector control in St George's Channel without any chance of engaging the enemy. This disappointment was heightened on 19th December when sneak raiders attacked a convoy off the coast within sight and hearing of the airfield. Cloud base was down to 200 feet and permission for the Beaufighters to take off was refused, giving a "maddening feeling of helplessness" to the pilots who had sought the enemy fruitlessly in long night vigil, only to be prevented from attacking him when so palpably near at hand.

Though uneventful—and briefly dismissed here—these months at Valley were important, for while No. 456 was only slowly assuming an Australian character, and still virtually serving an apprenticeship to the work it would do elsewhere, it represented the necessary insurance against any resurgence of enemy night-bombing. It was as necessary to train and give experience in night-fighter technique to the ground-control organisation as to the aircrew themselves in view of possible developments should Russia be overwhelmed; and this task, though unwelcome to the more ardent spirits, proceeded effectively during this period.

CHAPTER 7

DEVELOPMENT OF THE AIR OFFENSIVE AT SEA: MAY TO DECEMBER 1941

WHEN No. 10 Squadron R.A.A.F. returned in April 1941 to south-west England, the major problem facing Coastal Command was how to re-align its forces to best advantage against the enemy blockade. On 9th March both Coastal and Bomber Commands had received identical instructions from the War Cabinet that "for the next four months we should devote our energies to defeating the attempt of the enemy to strangle our food supplies and our connections with the United States, and that with this object we must attack the U-boats and the Focke-Wulf aircraft both on and over the sea and in their nests". The growing participation of enemy surface ships in the Battle of the Atlantic added a third onerous duty, but it was clear that the U-boat was the chief danger to the regular flow of raw materials and food to Britain which alone permitted her slowly-gathering strength in all arms for an eventual offensive. Whereas the measures to defeat the Focke-Wulf were already in sight, and although temporarily great damage might be inflicted by the limited number of German surface ships which would sooner or later be intercepted by superior British forces, the U-boat fleet was beginning to expand rapidly as the submarines built under the German war-time program came into commission.¹

Previously, with relatively few U-boats, the enemy had been able to inflict great losses by resolute and revolutionary tactics in night attack in areas where naval and air defences were largely ineffective, but there was now a danger that a large increase in U-boat successes might produce eventually so enervating a weakness in Britain's industrial economy that she would be unable to carry on the fight.

The first twenty months of anti-submarine warfare had been marked by technical and supply difficulties, while anti-submarine tactics, weapons and location aids had been improvised with little experience of this type of warfare. The value of air power had been demonstrated by the virtual immunity of individual convoys during the actual presence of aircraft by day—and by the progressive distances into the Atlantic to which U-boats were forced to travel in search of undefended targets. But by night or in bad weather when aircraft could not operate, the U-boats had relative freedom of action, and in any case as their range greatly exceeded that of aircraft they could shadow convoys into remote areas where they could attack with impunity. Despite promising counter-attacks no German

¹ The small number of FW-200 aircraft which attained such relative success against shipping at this time depended largely on low-level attack against ships ill-protected by anti-aircraft guns. The attacks took place beyond the range of British shore-based aircraft.

An immediate and marked fall in Focke-Wulf successes came when the provision of short-range anti-aircraft guns to merchant ships forced the enemy to bomb from a higher level and thus upset his aim. Ships carrying a catapult-Hurricane and grain ships with an auxiliary flight deck also greatly assisted convoys to scare away these raiders. A final answer came with the emergency "Woolworth" aircraft carriers.

submarine had been sunk by either naval or air defenders between 21st November 1940 and 7th March 1941, and it was clear that unless more U-boats were sunk than were commissioned, the enemy fleet must grow to such a size that not only would widespread operations be possible in all oceans, but the defences of convoys near Great Britain could be swamped.² This realisation that, although winning the struggle against U-boats would not by itself win the war, the war would certainly be lost unless far more successes were gained in the Atlantic, led directly to the abandonment in principle of rigid close air escort to all convoys, in favour of escort beyond visibility distance and systematic sweeps and searches for patrolling enemy submarines.³ These offensive reconnaissances aimed at policing wide areas of sea, intercepting U-boats as far distant from convoy tracks as possible, and thus preventing them from congregating in sufficient numbers or time to attack. Only if the U-boats actually reached the vicinity of a convoy was close escort to be reimposed.⁴ This new policy was commenced at the end of April 1941 by aircraft of No. 15 Group including those newly based in Iceland. It succeeded during the summer and autumn in forcing U-boats from their previous deployment areas into stations farther out in the Atlantic, until only very occasional sinkings occurred within 400 miles of any Coastal Command base. Outside the limits of effective air cover many ships were still sunk, but repeatedly as soon as these limits were reached the U-boat pack was broken up and the sinkings stopped.

In addition to affording greater safety to convoys, these new patrols led to a great increase in the number of U-boats sighted by aircraft. In the previous eight months only fifty sightings had been reported by aircraft escorting convoys, but in a similar period to the end of 1941 some 173 sightings were apparently made.⁵ Although no sensational rise in sinkings of U-boats by air attack resulted, this period is important for a complete review of weapons and methods of attack, which although they took a considerable time to become effective, are directly linked to the initial decision to take the offensive.

² Three Italian submarines were destroyed in the Atlantic during this period, two by the navy and one by Coastal Cd.

³ The air escort was extended to many miles from the convoy and the improvement in R-T equipment enabled the senior naval officer (SNO) of the surface escorts to use the aircraft for searches in specific directions. It also became the custom to afford such air escort only to those convoys thought to be in dangerous areas. Escort was timed particularly for late afternoon and up to dusk, as it was realised that U-boats in contact would shadow at a distance during the day ready to close in at nightfall for torpedo attack. The air effort thus conserved from the unattainable ideal of giving rigid close escort to *all* convoys was employed to provide more sweeps which covered one or more convoys in areas where U-boats were thought to be waiting. Few if any of the air sweeps and patrols westward of the British Isles were in fact unrelated to the position of convoys.

⁴ This more offensive policy is closely analogous to the employment of fighter aircraft during the early campaigns in the Middle East. It was a typical air force expedient and not always appreciated by merchant navy or Admiralty authorities, who, like the army, preferred to see aircraft actually in the vicinity of their own positions. Close escort is the final deterrent to enemy attackers but to be effective would require an astronomical number of aircraft. The wasting away of the Italian Air Force during the first Libyan campaign illustrates the basic fallacy of purely-defensive operation of air forces.

⁵ Sightings for both periods are contemporary figures and contain many instances when the reported object was not a U-boat. They are reproduced here because they were believed at the

The process was already in train but was energetically implemented when Sir Philip Joubert de la Ferté⁶ became air officer commanding-in-chief Coastal Command on 13th June 1941. Of the heterogeneous collection of aircraft employed at this time by Coastal Command squadrons only Hudsons, Whitleys, Wellingtons, Sunderlands and Catalinas were at all suitable for the projected offensive against submarines. None of the landplanes had originally been designed for patrol duties, and their modification and retrospective fitting with radar aids presented some difficulty. The production of Sunderlands was severely limited by its manufacturer's preoccupation with Stirling aircraft for Bomber Command, and this prevented the raising of new flying-boat squadrons. In all, an average of 200 aircraft were available during the latter half of 1941.⁷ Three patrol belts, respectively 300, 400 and 600 miles from Coastal Command bases, were covered in the following manner: Hudsons were primarily responsible for patrolling all sea approaches up to 300 miles from shore, the Wellingtons and Whitleys between 300 and 400 miles, and the flying-boats up to 600 miles.⁸ Outside this final belt no systematic reconnaissance could be made though on irregular occasions aircraft were sent on special duties.

The next step was to organise specially dense patrols in the two areas where U-boats were always present—the Bay of Biscay and the Iceland-Scotland passage areas. Newly-commissioned U-boats entered the Atlantic north about Scotland, and all U-boats had periodically to proceed to and from their maintenance bases at Lorient, St Nazaire, La Pallice and Bordeaux. Patrolling these areas of specially dense air activity soon led to

time and certainly played a full part in the planning of future action by HQ Coastal Cd. Careful analysis has since established the following figures:

U-boat Sightings

Period	Convoy		Transit	
	Escort	Support	Northern Transit	Bay of Biscay
1 Oct 1940—30 Apr 1941	13	13 (1 sunk)	3	Nil (No regular patrols)
1 May 1941—31 Dec 1941	22	65 (1½ sunk)	8	49 (1 sunk)

These amended, though diminished, figures show the same improvement in the latter period. It should be noted that both the increased flying hours on support duties and the increasing number of U-boats available to the enemy for deployment in convoy areas play a part in this analysis. It is significant that resulting from the new HQ Coastal Cd policy, U-boats retired out of range of all Coastal Cd's aircraft except Sunderlands and Catalinas. The only place where U-boats could still be found were the two transit areas into the Atlantic and consequently much of the medium- and short-range air effort was gradually moved to them. This resulted in the rise of Northern Transit sightings and the very remarkable figures for the start of Bay of Biscay operations.

⁶ Air Chief Marshal Sir Philip Joubert de la Ferté, KCB, CMG, DSO. (RFC and RAF France 1914, Egypt 1916-17, Italy 1917-18.) AOC-In-C Coastal Cd 1941-43, IG of RAF 1943. Regular air force offr; b. Calcutta, India, 21 May 1887.

⁷ 80 Hudsons, 40 Whitleys, 20 Wellingtons, 17 Sunderlands, 36 Catalinas. These are total strengths and could not all be flying at once.

⁸ In practice there was only one *main* approach. That lay through the NW Approaches to Northern Ireland. This was the focal point of all oversea convoys and it was here that the escorts and supporting sweeps of Sunderlands, Whitleys, Wellingtons and Hudsons were mainly flown.

abundant sightings, and the value of continual harassing was shown on 27th August 1941 when *U570*, relatively unharmed but its crew demoralised after persistent harrying by aircraft during its maiden voyage into the Atlantic, surrendered to a Hudson aircraft of No. 269 Squadron based in Iceland.⁹ Mere harassing, however, was not enough, and Coastal Command began a new drive to improve the weapons and individual training of aircrew, recognising that the destruction or damaging of a U-boat was an exact science demanding direct hits or very near misses due to the relatively small lethal range of the existing depth-charge. In July 1941 an important decision was taken to attack only U-boats which were still on or near the surface, for the probability of achieving from a fast-moving aircraft the extraordinary accuracy in three dimensions necessary to bomb an unseen submarine taking evasive action was exceedingly remote. This implied a return to the hitherto unpopular 50-foot detonation setting for depth-charges and attempts to provide a 25-foot setting, so that depth-charges would not detonate too deep for surfaced targets. The policy also required the theoretical and practical retraining of all pilots. The mathematics of this scientific approach were taught in tactical instructions, while dummy attacks on friendly submarines or small rocky islets were employed by all squadrons so that every pilot would possess instinctive coordination of mind and hands when the chance of a real attack arose. Attacks at night presented special problems, first of detecting the enemy and then of executing an accurate attack, but radar developments were forecast for the former, and special delayed-action flares and searchlights were projected to enable aircraft to manoeuvre into position to attack an illuminated enemy.

The fruits of these plans lay ahead in future years, but the actual operations of R.A.A.F. men during this period would be meaningless without some reference to the over-all intentions of Coastal Command's offensive against U-boats. Moreover, while these plans were taking shape, innumerable other duties interfered with any complete application to the main problem.

Indeed it is profitable to consider at this point the priorities of tasks allotted to Coastal Command by a directive dated 2nd September 1941. The preamble states that "under the operational control of the Admiralty" Coastal Command should fulfil the functions of (i) Reconnaissance, (ii) Offensive measures, (iii) Defensive measures. Over-sea reconnaissance is then given as "the primary role of Coastal Command" with strategic reconnaissance aimed at enemy main naval units, U-boats and concentrations of enemy shipping which might be used for oversea operations (in that order) and tactical reconnaissance to meet firstly the needs of Home Fleet operations and then the security of trade. Offensive operations are specifically stated as "subsidiary to the primary role of reconnaissance and

⁹ To be strictly accurate *U570* was attacked by an aircraft on *convoy support* in a position 125 miles SSE of Kaldjarnes and thus remote from the transit area patrols proper which at this time were being flown much farther east. This, however, in no wise alters the conclusion that the U-boat crew, demoralised by pressure during its maiden passage, surrendered at the first unavoidable encounter with an aircraft because of the pressure already brought to bear on it.

should be confined to bomber, depth-charge or torpedo attacks on naval units including U-boats at sea", torpedo attack against enemy naval units in harbour, bombing attack against merchant shipping outside the area between Cherbourg and Texel, and mine-laying. The defensive role is then generally stated: "Important naval units and merchant shipping require air escort over as wide an area as possible These escorts should be designed to give the maximum possible warning of the approach of enemy units and whenever possible should be of adequate strength to take offensive action against submarines or any other danger"

This directive, although it appeared to place more emphasis on warning than hitting and on "main enemy naval units" than U-boats, did allow a considerable measure of interpretation. Joubert had already during June and July given his own firm opinions to the Chief of Air Staff. He stated his intention of abandoning bombing attacks against enemy minor harbours and he wished to re-arm and retrain the squadrons previously allocated to this task either for an anti-submarine or an anti-shipping role. The latter task received an entirely new emphasis at this time partly to hinder enemy iron-ore traffic from Spain and Norway, and partly to aggravate the general German transportation difficulties caused by Bomber Command against internal routes by attacks on coastal shipping along the entire coast of enemy-occupied Europe.¹ Joubert was also concerned with the best use of long-range fighter squadrons under his command and advocated that, provided essential naval requirements could be ensured, they should be operated by Fighter Command in order to use the well-knit interception and information organisation controlled by that command. He was thus clearing his own command's decks for action but at the same time he felt strongly that the key to the wider problem of the sea battle as a whole lay in the Biscay ports. One suggestion, tinged with the existing over-optimism of the power of bombing, was that U-boats should be starved of fuel by a coordinated bombing campaign against Ruhr communications, coastwise tanker traffic and blockade runners.² Joubert also put forward the argument that the major port facilities from Brest to Bordeaux should be attacked by Bomber Command "taken in turn and reduced to the condition of Plymouth [after recent enemy raids]" This last suggestion, though not acted on at this time, was to become a recurrent theme.

Australian aircrew trained under the Empire Scheme arrived relatively slowly into squadrons of Coastal Command, and no R.A.A.F. squadron was formed during 1941. Partly because of the extra three months training required at a school of general reconnaissance, and partly because Bomber and Fighter Commands had prior needs, only ninety-two Australians had been posted to Coastal Command squadrons by December

¹ It was at this time that the Air Ministry set up a special committee to assess results of attacks against enemy shipping. Throughout this volume the wartime assessments of this committee are used but they are modified where possible by information from enemy records.

² The argument in this case was: ". . . Bomber Command's attacks on the Ruhr and Ruhr transportation system are bound to have a marked effect on the transportation of oil fuel by rail to the Biscay ports. Indeed they might cause it to cease altogether"

1941, and very few of them had engaged on operations. Many were Hudson crews posted as replacements for Nos. 53 and 59 Squadrons R.A.F. whose personnel had been sent to the Far East early in December 1941, and others went to No. 279 (Air-Sea Rescue) Squadron R.A.F. which remained non-operational for lack of aircraft. A few men had reached Hudson squadrons as early as July 1941 but their patrols were uneventful and display no features differing from those of No. 10 Squadron R.A.A.F. detailed below. Ten were engaged as second pilots on flying-boat squadrons and twenty-two had joined various anti-shipping or long-range fighter squadrons of the Command, where although active they achieved at first no outstanding success. There were also at this time four permanent R.A.A.F. men serving on attachment with Coastal Command, two (Wing Commanders Murdoch³ and Curnow) as commanding officers of Nos. 221 and 224 Squadrons R.A.F. and the others as flight commanders in Nos. 206 and 248 Squadrons R.A.F. A fifth attached officer, Wing Commander Candy,⁴ commanded No. 206 Squadron R.A.F. and then No. 6 (Coastal) Operational Training Unit through which passed all the Hudson trainees. Australian participation in Coastal Command was thus practically confined to the operations of No. 10 Squadron R.A.A.F. in No. 19 Group.

It must be emphasised that at this point the bias in the record leads the fractional Australian story away from the general history of the war at sea. No. 10 remained in south-west England for the remainder of the war and so (except for a very short period) did the only other R.A.A.F. anti-submarine squadron when it formed, so that concerted Australian effort was applied to the special tactical needs of the Biscay operations rather than to over-all strategy. At times this area was of paramount importance but at others, even when Australian participation would appear important and successful, affairs in the Bay of Biscay were really secondary to the world-wide struggle against U-boats.

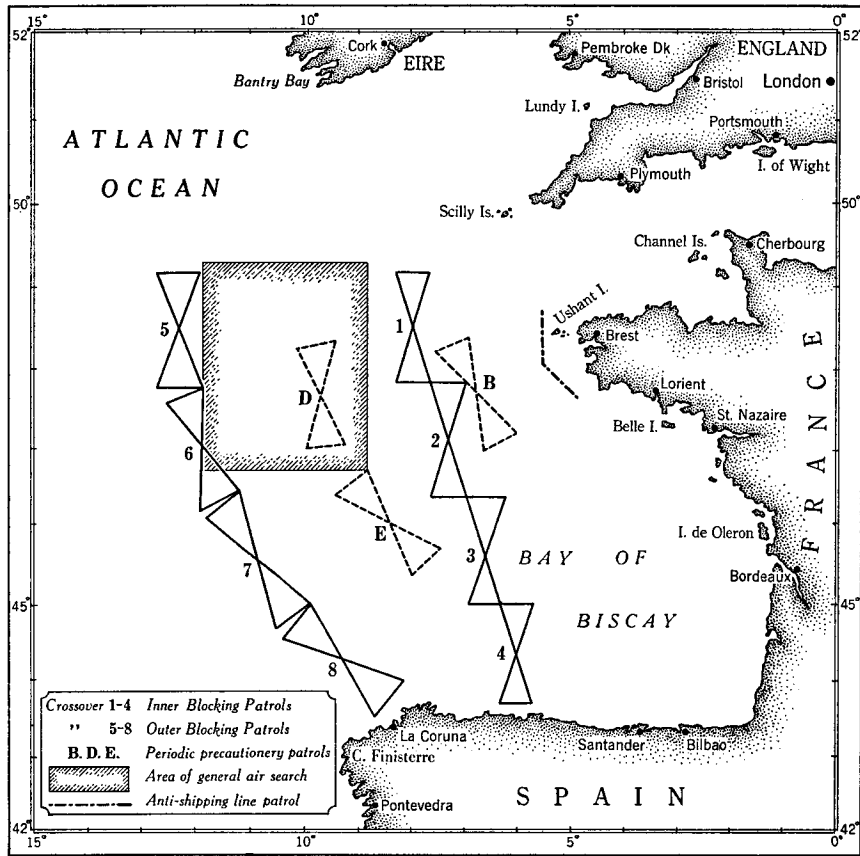
No. 10 Squadron experienced during 1941 not only a marked change of role but also considerable domestic changes. Practically all the original captains of aircraft had already completed operational tours and were withdrawn for non-operational employment or return to Australia to pass on the experience they had gained in action. Two parties of ground staff were also repatriated being replaced by new reinforcement drafts. Wing Commander Knox-Knight remained in command until December when he left to join the staff of R.A.A.F. Overseas Headquarters, handing over command of No. 10 to Wing Commander Richards.⁵ Although originally it was intended to maintain only the operational crews and servicing parties

³ AVM A. M. Murdoch, CBE. Comd 1 AOS 1940-41, 221 Sqn RAF 1941-42; SASO HQ Eastern Area 1943-44, HQ NW Area 1944-45, 1 TAF 1945. Regular air force off; of Elsternwick, Vic; b. Elsternwick, 9 Dec 1912.

⁴ AVM C. D. Candy, CBE. Comd 206 Sqn RAF 1941, 6 (C) OTU RAF 1941-42, 1 OTU 1942-43, 71 Wing 1943, 74 Wing 1943-44; SASO 10 Gp 1944, RAAF Cd 1945. Regular air force off; of East St Kilda, Vic; b. East St Kilda, 17 Sep 1912.

⁵ Gp Capt A. X. Richards, 72. Comd 3 Sqn 1939, 10 Sqn 1941-42, Liberator Ferry Flight 1944; Dep Dir Orgn (Estabs) RAAF HQ 1944-46. Regular air force off; of Jamestown, SA; b. Launceston, Tas, 1 Dec 1912.

at Pembroke Dock, the maintenance section and squadron headquarters also transferred there in June 1941 from Plymouth which for the remainder of the year was used only as a forward base capable of operating two Sunderlands in emergency. The older Sunderlands were gradually modified to carry air-to-surface vessel radar (A.S.V.) Mark II and also a dorsal turret in place of the old side free-gun positions. One unfortunate aspect of the return to Pembroke Dock was recurrent instances of petrol supplies contaminated with water which at times involved much extra



Planned air patrols in the Bay of Biscay, summer 1941.

maintenance work and seriously affected operational readiness. In general, however, the squadron, now fully experienced, continued to perform all its duties efficiently both on the ground and in the air. Although events and policy were tending towards the inauguration of a Battle of the Bay, within the wider Battle of the Atlantic, extraneous needs were to prevent the squadron concentrating on this main task, and its operations still showed a wide variety.

During the early part of May 1941 the Sunderlands of No. 10 continued the watch on battle cruisers *Scharnhorst* and *Gneisenau* in Brest. Heavy bombing attacks had been made against these ships, but at the time there was no certainty or even firm belief that they had suffered damage.⁶ The main contemporary opinion was that this decided reaction to their presence was thought likely to influence their early withdrawal to German ports or departure on another commerce-raiding cruise. Only one flight of No. 206 Squadron (Hudsons) was available in No. 19 Group to assist in this task, so the Sunderlands were ordered to carry the maximum fuel stowable to ensure long hours in the patrol area of "Crossover B" lying between latitudes 47 degrees and 48 degrees 20 minutes north and longitudes 06 degrees and 07 degrees 20 minutes west. Four sorties were flown on this duty before 6th May when the immediate likelihood of a breakout had diminished, as Photographic Reconnaissance Unit photographs showed that one of the battle cruisers was in dry dock.⁷ The primary object of Sunderland patrols was accordingly changed: "to sight, shadow and report on U-boats, but that when for any reason such primary object should cease to exist then the aircraft should revert to carrying out those of 'Crossover B'." This was only a subtle distinction of freedom of action on patrol, because the anti-submarine watch was flown in the same area as the anti-raider watch, for "Crossover B" lay along the 100-fathom line which was thought to be the track of incoming and outgoing U-boats at this time.⁸ These patrols were continued throughout the month, chiefly by day, and occasionally at night when an aircraft possessing Mark II A.S.V. was available, but no U-boats were seen.¹ French fishing vessels, some of which were suspected of acting as a forward warning screen for the enemy, were frequently seen, but no action was taken against them. Enemy aircraft, principally those engaged on anti-shipping duties, were also encountered but these made little attempt to interfere with our patrols, though Flight Lieutenant Havyatt on 6th May tried energetically to bring an He-115 float-plane to action. The Sunderland was flying the southerly leg of "Crossover B" when the enemy was sighted at 8.43 a.m. Both aircraft manoeuvred for height until Havyatt took the initiative by getting between the Heinkel and the French coast. Surprisingly he seemed able to outpace and outmanoeuvre the smaller aircraft. Bursts of fire were exchanged during a protracted engagement, the Heinkel employing cannon armament. While Havyatt was climbing for a further attack, the enemy dropped two bombs, apparently deliberately aimed towards his aircraft, but both missed, and after the Sunderland

⁶ In actual fact the *Gneisenau* was severely crippled. A successful torpedo attack by a Coastal Cd Beaufort on 6 Apr 1941 followed by bomb hits during a Bomber Cd raid on the night of 10-11 Apr so damaged *Gneisenau* that she was out of action until the last week of 1941.

⁷ This was *Gneisenau* but as detailed above her damaged state was not known at this time.

⁸ The Continental shelf of the Bay of Biscay is relatively shallow for some distance, but at the 100-fathom line drops away very steeply. As this natural feature continues up to the west of Ireland it was the presumed practice of U-boats, once in deep water, to proceed close to this 100-fathom line cliff right up into their operational area.

¹ Mark II ASV was not only a more robust and reliable radar-search receiver, but its aerial array permitted lateral, as well as ahead, search.

had scored further machine-gun strikes on the Heinkel, the latter disengaged and escaped, being officially rated as damaged.

Reconnaissance farther afield was ordered on 11th May to assess the volume of coastal traffic between French and Spanish ports. The range of Blenheims and Beauforts which were earmarked for anti-shipping duties did not allow them to search for their own targets and this duty naturally fell to the Sunderlands. Flight Lieutenant Costello accordingly flew to Santander and began a detailed reconnaissance of Spanish territorial waters, inspecting several merchant vessels and trawlers. A similar patrol on 14th May was entirely negative, no shipping being identified. Again on 19th May nothing suspicious was seen. While returning from this last sortie Costello sighted a submarine surfaced in a submerged bombing restriction area, and approached to make sure of its identity before attacking what might be a friendly submarine surfaced in distress.² It was an Italian submarine and soon revealed its enemy character by firing incorrect recognition signals possibly under the impression that it was receiving German air escort while in the Bay. Costello had no time to get to the normal attacking height of fifty feet and accordingly while his aircraft was still at an altitude of 200 feet he dropped his depth-charges which fell in two groups fore and aft of the conning tower but away to port. Realising its mistake the undamaged vessel dived immediately and was fully submerged when Costello turned quickly to attack with his machine-guns. This attack was the only one made by the squadron during the month, though several diversions to the position of U-boat sightings by aircraft of other squadrons had been made without result.

Meanwhile Coastal Command aircraft were engaged in a wide search for the German battleship *Bismarck*, thought to be making for Brest after the naval engagement in the Denmark Strait on 24th May and its subsequent damage by carrier-borne aircraft and destroyer torpedo attacks. Flight Lieutenants Field³ and Fletcher⁴ of No. 201 (Sunderland) Squadron then based in Iceland undertook several notable patrols in Norwegian waters, the Faeroes-Iceland Channel and the Denmark Strait during this search. As the hunt came closer to the South-Western Approaches, Hudsons, Wellingtons and Catalinas were attached to No. 19 Group to strengthen its reconnaissance forces, and large Bomber Command detachments gathered at Perranporth and Predannack in the expectation that a bombing strike might become the only means of preventing *Bismarck* from outdistancing the Home Fleet which was short of fuel. In the elaborate system of patrols for the enemy battleship two Sunderlands participated on 27th May. Squadron Leader Podger and Flight Lieutenant Costello sighted neither *Bismarck* nor her detached consort *Prinz Eugen* but both encountered enemy aircraft, two He-115's approaching Costello and then

² The presence of friendly submarines in the Bay at this period necessitated the prohibition of aircraft attacks in their area of operation. In a Total BRA no attack at all could be made, and in a Submerged BRA only fully-surfaced submarines by day could be attacked and no submarines by night.

³ Sqn Ldr H. J. Field, 41163 RAF. 201 and 524 Sqns RAF. Regular air force offr; b. Toowoomba, Qld, 9 Jun 1913.

⁴ F-Lt D. J. Fletcher, 41166 RAF; 201 Sqn RAF. Regular air force offr; of Toowoomba, Qld; b. Lowood, Qld, 4 Oct 1913. Killed in action 21 Dec 1941.

sheering off, while a single He-115 was hotly engaged and damaged by Podger's gunners.

The crystallisation of any continuous policy for aircraft in the Bay of Biscay had been further impeded by urgent demands that the Australian Sunderlands, the only long-range aircraft in No. 19 Group, should undertake ferrying missions consequent on the rapidly-worsening position in the eastern Mediterranean, where Greece and Cyrenaica had already fallen to the enemy and Crete was threatened with imminent invasion. Between 27th April and 25th May six separate detachments were made from No. 10, either to Malta or Alexandria carrying important passengers and reinforcements, spare parts and ammunition for No. 272 Squadron Beaufighters which had hurriedly been transferred to the Middle East for long-range fighter duties. Of these six Sunderlands one was destroyed during an enemy air raid at Malta and another was badly damaged and left at Cairo for repairs. Apart from these losses, this duty alone caused the absence of an average of one and a half Sunderlands from Pembroke Dock during the whole period. To obviate this, Coastal Command decided to attach the three "G"-class flying-boats of No. 119 Squadron R.A.F. to No. 10 to fulfil ferrying requirements and thus permit Sunderlands to be retained for offensive operations. The squadron agreed to take over these former civil flying-boats, although it entailed much extra work for an already hard-pressed maintenance section, because the "G"-boats had different engines and turrets from the Sunderland. The flying-boats arrived on 11th June with incomplete flying crews and as they were required for special flights to the Middle East fairly soon, No. 10 had to make good these deficiencies. One of them, the *Golden Fleece*, developed engine trouble near Cape Finisterre on the night of 19th-20th June and after first making for Lisbon and then attempting to return to Mount Batten, crashed in the open sea. Most of her crew and passengers (including two Australians) were lost, but of five survivors eventually rescued by a German seaplane, one was Corporal Corcoran⁵ who thus became the squadron's only prisoner of war. Corcoran had previously survived the crash of a Sunderland in the Irish Sea on 28th April. Limitations had already been observed in the performance of the "G"-class boats, and the two that remained were withdrawn for modifications and new engines. The plan to incorporate a special long-range communications flight into No. 10 thus lapsed, with the result that Sunderlands were still required for these duties until the emergence of an R.A.F. transport group.

Sunderland operations during June 1941 continued to be mainly concerned with maintaining anti-submarine and anti-raider watch off the Brest peninsula. On 1st June two aircraft of No. 10 stood at immediate readiness for action against the cruiser *Prinz Eugen*, which had parted company with *Bismarck* after the Denmark Strait battle, but it had safely reached Brest before they were ordered into the air. The move of the "pocket-battleship" *Lutzow* up the Norwegian coast, as if attempting to

⁵ F-Lt L. G. Corcoran, 4503; 10 Sqn. Regular airman; of Melbourne; b. East Melbourne, 26 Jul 1917.

break out into the Atlantic, led on 11th June to one Sunderland being sent from Pembroke Dock to Sullom Voe in the Shetlands to shadow this German "pocket-battleship". The aircraft returned to Pembroke Dock after one negative patrol on 13th June, as that day Beauforts of No. 42 Squadron R.A.F. had torpedoed the *Lutzow* which put back to Kiel. In all during the month the Australians flew 487 hours on 47 sorties, an improvement on the previous month's tally of 351 hours in 35 sorties, but although "Crossover B" was flown both by day and night no U-boats were sighted and no attempt was made by any ships of the Brest squadron to put to sea. Positive incident was confined to encounters with enemy aircraft, which, despite the withdrawal of enemy units to eastern Europe, from this time onwards attempted to disrupt our reconnaissance patrols. Arado 196 float-plane fighters were frequently seen and two aircraft of this type attacked Flight Lieutenant Thurstun⁶ on the evening of 5th June. They approached in line astern from the port quarter but met concentrated fire from rear-turret and port-midships guns and the leading Arado crashed into the sea, the other aircraft breaking away immediately. The same pilot was attacked on 27th June by a Heinkel 111 which made several abortive attempts at head-on attacks, but finally withdrew damaged and trailing smoke.

Sunderlands were shadowed by enemy aircraft on several other occasions during the month but the last definite encounter came on 30th June when a four-engined Focke-Wulf 200 approached Flying Officer Wearne⁷ at 1 p.m., and after flying a parallel course for a few minutes turned in to attack from the starboard quarter. Wearne dived low on the water and increased speed to confuse the enemy's aim while his own gunners secured hits on the Focke-Wulf as it passed astern. The next enemy attack from the port quarter was frustrated by turning the Sunderland steeply in towards the Focke-Wulf's line of approach, so that it could not bring its forward guns to bear. Accordingly the German aircraft then took station about 500 yards astern, out of effective machine-gun range, but where it could effectively employ its own cannon. By suddenly throttling back his engines, Wearne brought the enemy back into range of his tail turret which secured some strikes. The Focke-Wulf broke away and after one more attack from the port beam, climbed up into cloud and was not seen again. English ground wireless-telegraph stations intercepted a message indicating that some of the enemy crew were wounded, but the Sunderland had itself suffered damage below the waterline, in the port float and more seriously in the port-outer oil tank. As large quantities of oil were being lost, and engine failure seemed certain, Wearne set course for base. His junior air mechanic, Leading Aircraftman Griffin,⁸ volunteered to crawl out inside the port wing to inspect the damage. Griffin found two large

⁶ W Cdr G. R. Thurstun, DFC, 460. 10 and 20 Sqns; comd 41 Sqn and 74 Wing 1944, RAAF Stn Rathmines 1944-45. Regular air force offr; of Wyalkatchem, WA; b. Perth, WA, 24 May 1917. Died 6 Sep 1947.

⁷ W Cdr A. G. H. Wearne, DSO, DFC, 464. 10 and 11 Sqns; comd 20 Sqn 1944-45. Regular air force offr; of Midland Junction, WA; b. Midland Junction, 28 Oct 1916.

⁸ F-O M. T. Griffin, DFM, 3685. 10 and 40 Sqns. Regular airman; of Hornsby, NSW; b. Ryde, NSW, 30 Apr 1917.

holes in the bottom of the side tank which had practically drained into the engine nacelle. He returned for plugs and stopped the leak, then made a third journey into the wing, and, by using an old peach tin as a ladle, transferred the spilt oil back into the tank through a hole he made in its top surface. Despite the cramped space and the intense heat he made a fourth journey into the wing with another two gallons of oil which likewise was slowly poured into the tank, the whole operation taking more than an hour and a half, until the Sunderland safely reached Mount Batten to which base it had been diverted.

Searches undertaken during the month for the *Golden Fleece* and for a missing Blenheim were unsuccessful, but Thurstun, while returning from a routine patrol on 5th June, located a dinghy containing four Germans who were later rescued by a surface vessel sent out in response to his report. Weather at times was adverse and changeable so that on occasions returning aircraft had to be diverted to other bases or reached Pembroke Dock only with difficulty, but the pressing need to maintain a continuous level of operations meant that the risk of changeable weather had constantly to be faced. This factor contributed to the loss of yet another Sunderland which reached Pembroke Dock in bad weather and, while an air raid alert was in progress during the night of 24th June, overshot the flare path and crashed on the rocks off Popton Point in Milford Haven, two of the pilots being fatally injured. Air raids were soon to grow less frequent but earlier in the month (on 10th June) another airman had been killed at Pembroke Dock.

Despite a recurrence of maintenance difficulties due to contaminated petrol, in the improved weather of July 1941 No. 10 pilots were able to increase their operational effort by a considerable margin, the total of 664 hours being the highest since the record achievement in June 1940. Patrols over the Bay of Biscay were maintained both by day and night, but these painstaking searches were disappointing, for although two enemy submarines were sighted, one on the night of 4th-5th July and the other on 31st July, in each case the U-boat had dived before any attack could be pressed home. Though denied the positive satisfaction of striking at the enemy, some consolation was found in the belief that Sunderland patrols, now reinforced by Hudson and Wellington sweeps, were forcing U-boats to adopt more and more cautious behaviour in their passage area. There was some apparent justification for a belief that this defensive attitude of U-boat crews was spreading to their methods of attack, for although sinkings of merchant ships in the Atlantic were still heavy, the proportion of success of each U-boat operating had fallen considerably.⁹

⁹ According to contemporary German documents and U-boats' logs no such cautious enemy behaviour started until mid-Nov 1941 when submerged passage in certain parts of the Bay was practised. Australian and other aircrew were thus mentally anticipating the result of increased pressure on U-boats before the actual weight of effort had had time to effect any change.

The extension of this wishful thinking into belief that the Bay patrols were also affecting the success of U-boats in their operational areas also lacks validity. The main reason for the comparative decline in sinkings achieved by each patrolling U-boat was that, because general air pressure had forced U-boats out into the wide spaces of mid-Atlantic, they were then too few and scattered to counter the effective evasive routing then being employed by convoys. The value of FW-200 reconnaissance to the U-boats also declined and thus it was very difficult for the enemy to marshal a "wolf pack" against any particular convoy.

Moreover conscientious air patrols, even though negative in themselves, produced circumstances in which follow-up aircraft could sight a submarine which had been kept submerged to the limit of its endurance. The true potential value of these patrols was shown by the fact that of a total of ten sightings made by Coastal Command aircraft during the month no fewer than eight were in the Bay of Biscay.

Towards the end of July two factors combined to postpone once more any whole-hearted application of the Bay anti-submarine patrols. On the night of 21st-22nd July the *Scharnhorst* slipped out of Brest and all aircraft in No. 19 Group were required to search for her. No. 10 was ordered to maintain a patrol off Cape Finisterre to detect any move against the Sierra Leone convoy route, and a reconnaissance was also made of Ferrol, the principal naval base in northern Spain where the battle cruiser might have found cooperation or asylum. When early on 23rd July *Scharnhorst* was identified in La Pallice all Coastal Command aircraft were employed on close watch off Brest and La Pallice, the Sunderland patrols during darkness being moved closer to the coast. Bomber Command also attacked the two ports in daylight on 24th July, but despite our laborious air patrols *Scharnhorst* returned undetected to Brest the following night. All three ships, *Scharnhorst*, *Gneisenau* and *Prinz Eugen* were in dry dock at Brest by the end of the month, and any immediate threat of departure was thus slight. But before this problem was resolved aid was required for a convoy bound for Gibraltar which had been intercepted by several U-boats west of Ireland. Sunderlands from Pembroke Dock attempted but failed to escort this convoy whose position was some 600 miles distant but uncertain as it had changed course in an attempt to elude the submarines.

Air-sea rescue duties and two flights to the Middle East further restricted the effort which the Sunderlands could maintain on Bay patrols. Several unsuccessful searches for survivors from ships and aircraft were made and the one successful sortie was made only at the cost of a Sunderland which on 9th July was diverted from patrol to search for a dinghy belonging to a missing Hudson from No. 206 Squadron. Thurston located the dinghy and in difficult conditions attempted to alight and pick up the survivors. He made a safe alighting but his port-outer engine was torn away by the force of the impact and the port float was broken. The Hudson crew were taken into the Sunderland which began to taxi towards the English coast at 4.30 p.m. During the night the Hunt-class destroyer, *Brocklesby*, which had sailed from Plymouth to tow the Sunderland home, arrived, but having meanwhile received orders to proceed to the reported position of a U-boat, *Brocklesby* embarked both aircraft crews and sank the Sunderland by gun fire.

August 1941 was almost a blank month for No. 10 Squadron. No. 19 Group discontinued night Sunderland patrols because of the necessity to conserve long-range aircraft effort, and this, coupled with engine trouble which made several sorties abortive, considerably reduced the Australian squadron's flying hours to 385. Although Sunderlands on the day-Cross-

over patrols were diverted on occasions to the estimated positions of U-boats, no sightings occurred, and three flights late in the month to escort a Gibraltar-bound convoy were similarly unproductive. More incident was hoped for when anti-shipping reconnaissances into Spanish waters were resumed on 9th August, as pilots were now authorised to bomb suspicious vessels, but on the two patrols actually flown on this duty no targets were discovered outside Spanish territorial waters. A spirited fight with a FW-200 did result from the second anti-shipping patrol on 14th August for while Flight Lieutenant Hodgkinson was crossing the Bay of Biscay, the enemy aircraft appeared in position 45 degrees 22 minutes north 03 degrees 28 minutes west and taking up station on the Sunderland's starboard quarter, opened fire at long range with its cannon. Once again the expedient of throttling back the Sunderland brought the enemy within machine-gun range, and the Australian tail and midships gunners fired short bursts and scored numerous hits as the FW-200, now committed to a deliberate attack, pressed in to very close astern. Finally at fifty yards range, the enemy broke away with a damaged port-inner engine and pieces flying from its fuselage. The action had been fought low on the water, and the FW-200 climbed to 500 feet, appeared to stagger and lost height again to 200 feet, but then recovered and began climbing in wide circles to starboard. Hodgkinson now attempted to press home his advantage but the enemy although damaged could still outdistance the Sunderland and soon escaped into the protection of a low cloud bank, only six minutes after the initial attack at 10.42 a.m. Later in the morning Hodgkinson sighted shipping in the distance, but this proved to be seventeen trawlers, which were immune from attack. At 12.30 p.m. when in a restricted bombing area he had the further disappointment of seeing a submarine, almost certainly enemy, which dived when he was still eight miles away.

The failure of aircraft to discover enemy submarines in the Bay of Biscay during August 1941, led to a belief that the enemy had divined British A.S.V. transmission and had themselves evolved a search-receiver which picked them up and thus gave warning of the approach of an aircraft. Accordingly, on 19th August 1941, the aircraft of No. 19 Group were forbidden except in emergency to use their A.S.V. during alternate weeks so that this supposition might be tested. This trial lasted for five weeks during which events greatly restored the confidence of aircrew in the radar search apparatus. Early in September the Hudson and Wellington parallel-track sweeps over the Bay of Biscay brought renewed sightings of enemy U-boats, and several times R.A.A.F. Sunderlands were diverted from their own patrols or sent out on strike duties to pin down submarines discovered by other aircraft. Mount Batten, now almost entirely free from enemy air action, came increasingly to be used as an advanced base for strike operations, as it shortened the time elapsing before a Sunderland could reach the enemy position and commence patrol. Three such hunts by Sunderlands in the first ten days of September were fruitless, for at that time it was virtually impossible to maintain patrol with successive

aircraft up to the exhaustion limit of the submerged U-boat—some forty hours—and effectively cover its complete underwater radius of action during that period, as it might then be anywhere within an area of 30,000 square miles. On 8th September Wearne, however, when dispatched to the position where a Wellington had previously attacked a submarine, found a large thick oil patch from which erupted gouts of oil. After patrolling in this area for some time he was ordered to attack the oil patch and dropped his depth-charges (set deep to 150 feet) on its leading windward edge, but although more fresh oil appeared in the circle of the explosion, no more tangible evidence of damage resulted.

Two days later Wearne himself initiated a sighting report when a U-boat was discovered only a mile off his port bow. The Sunderland was flying too high to execute an immediate attack and while manoeuvring into position, the enemy began to submerge, but its shape was still visible beneath the surface when Wearne finally dropped three depth-charges along the line of the U-boat's wash. Direct hits were estimated aft and forward of the conning tower, and subsequently a large reddish-brown patch appeared some 100 yards from the explosions. The fourth depth-charge had not fallen due to mechanical fault, and a second attack was made, but although this time the depth-charge dropped from its carrier, it failed to explode. Wearne remained in the area for a further three hours and was then relieved by another Sunderland, but nothing further was seen, and although the attack had seemed promising, it was finally assessed that the U-boat escaped without material damage.

The standard Crossover patrols themselves were flown regularly but were unproductive. A few enemy aircraft were seen but none made any attempt to close the Sunderlands. Late in the month, suspicious oil patches in areas remote from convoy routes were twice attacked by Sunderlands, but in each case there was insufficient evidence of the presence of a U-boat. During an anti-shipping patrol on 21st September Hodgkinson saw a submarine at periscope depth below him, but before he could attack it had completely submerged. The anti-shipping patrols had hitherto been as disappointing as the anti-submarine patrols, but on the last day of the month, Havyatt found two small tramp steamers at sea in the south-east corner of the Bay of Biscay. Each was of approximately 400 tons displacement and armed with large twin machine-guns each side of the wheelhouse, a heavy gun on the stern and an anti-aircraft gun forward. They bore no national markings but were almost certainly iron-ore ships plying between Spanish ports and Bordeaux. As the Sunderland came close to investigate, the rear ship opened fire, so Havyatt climbed to 3,000 feet and in a shallow dive attacked the ships, which had separated and were circling evasively, but kept up a steady fire with their guns. The nearest bomb fell sixty yards astern of the second ship which was raked with machine-gun bullets as the Sunderland swept overhead. The ships were photographed and Havyatt then dived to 100 feet and commenced shadowing from one and a half miles astern. He reported the circumstances of the attack to base, but continual mechanical trouble with the wireless

apparatus, which twice burst into flames, prevented amplifying reports being sent or instructions received from No. 19 Group. After following the ships for five hours the Sunderland had to return to Mount Batten.

There was little material change in conditions over the Bay during October 1941, despite the arrival at Pembroke Dock of No. 209 Squadron R.A.F. whose Catalina flying-boats began to patrol the area west of longitude 12 degrees west, and also relieved No. 10 from convoy duties when the regular monthly Sierra Leone and Gibraltar convoys were passing within range. No anti-shipping sorties were flown and the Australians concentrated on flying a new flexible pattern of Crossover anti-submarine patrols, established by No. 19 Group. The number of sorties flown by No. 10 rose from 49 in September to 56 in October, but actual hours on patrol over the Bay declined due to recurrent engine trouble and new requirements for ferrying duties to the Middle East. Only one ferry flight had been made in August and two in September but four were necessary during October, one Sunderland being away for nearly three weeks and another, ten days. These flights were again made to carry senior diplomatic and service personages, and Thurstun on 18th-19th October made a record flight under war-time conditions by flying to Alexandria in thirty-six hours, stopping only two hours at Gibraltar and four at Malta.

The Australians' anti-submarine patrols at this time were practically all flown by day, as no satisfactory technique of night attack on U-boats had been evolved. The enemy, however, had reacted quickly to increased daylight patrols and now rarely surfaced by day in the known danger areas. By proceeding very slowly submerged by day and making as much progress on the surface by night U-boats were in the main able to cross the Bay safely, but only at the cost of obvious delay and (it was thought) of considerable strain on the crews.¹ Unwary submarines were still sometimes surprised on the irregular landplane sweeps and, as in previous months, the Sunderlands were several times diverted to the known position of a U-boat, but in no case did any second sighting result. On their own patrols Sunderlands of No. 10 on two occasions caught a fleeting glimpse of a submarine, but only once was any attack possible and this was inconclusive. More oil streaks were seen by several aircraft, but none of them was attacked.

The arduous but unrewarded nature of this constant search for an enemy who would not show himself while the patrols continued, was relieved by two individual acts of bravery by members of the squadron. Early on 24th October when a Sunderland was flying in darkness to begin its patrol at dawn, it was fired on by unseen surface vessels. The tracer bullets all appeared wide, but at day-break the port wing was seen to be holed and the port-outer tank streaming oil. The fitter, Leading Aircraft-

¹ The strain imposed on enemy U-boat crews by forced submerged passage was a theme constantly reiterated both at this time and later. It was certainly believed by aircrews and gave a sense of justification to even the most exacting and uneventful patrol. Careful analysis in fact reveals no evidence that towards the end of 1941 submerged passage entailed any strain on the crews, who much preferred the minor discomfort to the possibility of recurrent crash-dives should they proceed surfaced. Thus the only modest dividend from air patrols at this period was the increase of a few days in a U-boat's passage time which meant that they could not spend quite so long patrolling against shipping.

man Hunter,² emulated the earlier feat of Griffin; he crawled into the wing and kept the engine running smoothly by collecting oil drained into the nacelle and pouring it back into the tank, remaining there for two hours until the aircraft safely regained Pembroke Dock. The other episode was a notable air-sea rescue operation on 22nd October. Flight Lieutenant Burrage³ had been sent out to locate and escort a Whitley aircraft of No. 502 Squadron R.A.F., which was returning to St Eval after engine failure. Interception was not made at the estimated position so Burrage began a search but saw nothing. After four hours a message was received that a Hudson had located an aircraft dinghy, and the Sunderland was ordered to investigate but not to risk an alighting in adverse conditions. An hour later Burrage found the dinghy by homing with his radar apparatus on two Hudsons which were now circling the position. Jettisoning his depth-charges, he dropped smoke floats and then made several low circuits to gauge the height of the waves and the effect of wind and swell. Conditions were far from good but a successful alighting was made at 5.25 p.m. about a mile from the dinghy, and, although there was some difficulty because of sea conditions in manoeuvring close, the six survivors were finally taken aboard, the Sunderland became airborne after thirty-five minutes and returned to Pembroke Dock. The initiative and fine seamanship displayed brought many congratulatory messages to the squadron and the incident gave confidence to all crews who were called upon to operate over the enemy-controlled waters of the Bay of Biscay where the hope of surface aid at that time was small.

Bad weather and rough seas at the end of October began to interfere with operations from Pembroke Dock, and these conditions prevailed throughout November to such a degree that only on eleven days were flying-boats able to operate. Only twelve routine anti-submarine patrols were flown, and these were now located west of 11 degrees west in an attempt to find U-boats surfacing in an area they considered remote from air control. With so few long-range aircraft available, however, the chances of sighting the enemy were small and the Sunderland patrols revealed nothing more exciting than an occasional mine broken away from its moorings in the gales. Only one diversion to a previous sighting was made and on this occasion search revealed nothing. The Hudson and Whitley squadrons at St Eval were not so hampered by weather, and operating both by day and night over the Bay proper made thirteen sightings. After the initial success of the second British offensive in Libya, U-boats were hurriedly sent to the Mediterranean and partly abandoned their previous cautious behaviour in the Bay, with the result that on 30th November 1941 the patient air policing of this area was at last rewarded when Whitley B/502 sank *U206*.⁴ The second Libyan offensive

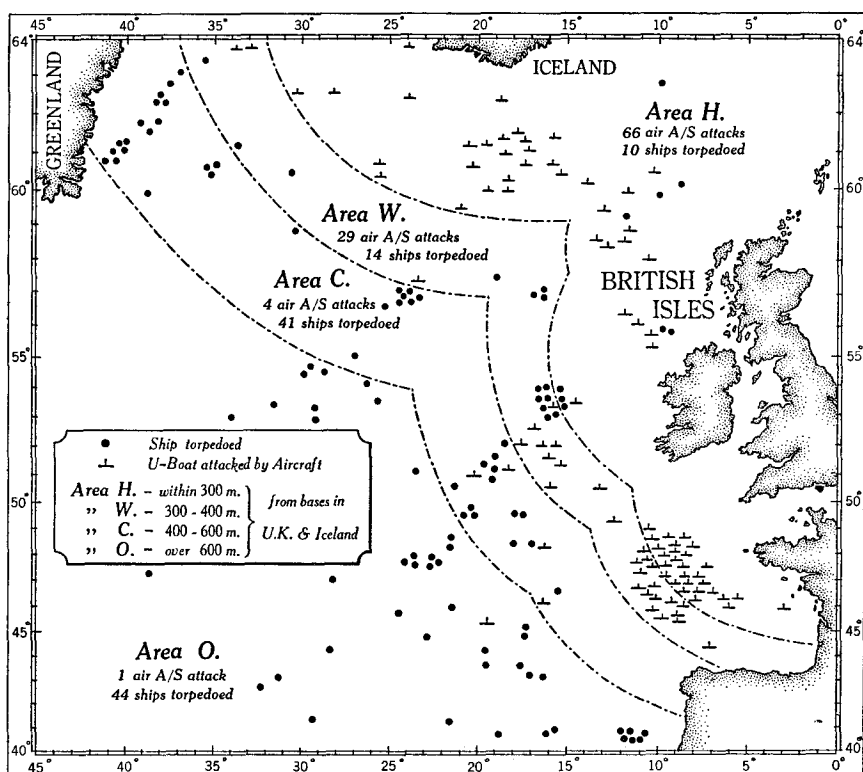
² Cpl D. T. Hunter, 15794; 10 Sqn. Station hand; of Glenariff Stn, NSW; b. Toowoomba, Qld, 12 Nov 1910.

³ Gp Capt R. B. Burrage, OBE, DFC, 212. 10 Sqn; comd 461 Sqn 1942; 202 Sqn RAF, 11 Sqn; comd 76 Wing 1944-45. Regular air force offr; of Melbourne; b. Auburn, Vic, 13 Sep 1917.

⁴ Aircraft were always identified by their markings. Each sqn had two code letters and individual aircraft of the sqn had a different subsidiary letter. Thus any aircraft joining a convoy was easily

thus not only caused a diversion of U-boats southwards, but also gave aircraft a chance to strike hard at them, another four being damaged in varying degrees during their hasty journeys.

The preliminary air preparation for Operation CRUSADER had shown weaknesses in R.A.F. fighter squadrons in the Middle East and urgent requests had been made for experienced pilots from the United Kingdom. Although aircraft of British Overseas Airways Corporation began to fly



The effect of anti-U-boat air effort in the Western Approaches: June-December 1941.

between England and Cairo in November, the Sunderlands of No. 10 were still employed on lengthy detachments. Burrage flew to Malta between 3rd and 6th November with 14 fighter pilots; returned to Gibraltar and carried a further 15 fighter pilots to Cairo. After two flights to Alexandria he returned to Gibraltar with eleven passengers, but on a further flight to

recognised without signalling. R/RB would positively identify the aircraft as a Sunderland of No. 10. This letter identification was also employed in all signals, reports, dispatches etc. but in this case the subordinate letter and the actual number of the squadron were used. B/502 is as distinctive as U206. This was the first German U-boat to be sunk by air action in the Bay of Biscay. The difficulty of sinking submarines is demonstrated in that only one other German and one Italian submarine had been sunk previously in this area—both by Allied submarines late in 1940.

England was forced to return through bad weather. On 23rd November he again set out from Gibraltar and after an inconclusive fight with a Heinkel 111, safely reached Pembroke Dock. Wearne was absent on similar duties between 8th November and 2nd December, and Hodgkinson between 8th and 27th November, and thus half the established squadron strength was preoccupied for three weeks on this subsidiary duty, and there were also two shorter flights to Gibraltar during the month.

This temporary shifting of emphasis of No. 10 Squadron's effort away from the Bay of Biscay continued during December. Despite losses the enemy was persevering to pass U-boats through the Strait of Gibraltar, and after the entry of the United States into the war, more were being prepared for long-range operations in the western Atlantic.⁵ Consequently it was thought that the normal passage routes through the Bay towards the North Atlantic would be little used.⁶ Only seven Sunderland patrols, four of which were curtailed by bad weather, were detailed for the Bay during the month, and these were all flown off north-west Spain to watch for Mediterranean-bound submarines, but no success was gained. Hodgkinson returned to Gibraltar early in December and flew three anti-U-boat patrols. Costello was also there on detachment, but as his Sunderland was damaged at its moorings by a dinghy he was replaced on 12th December by Wearne with Sunderland Q/10 which flew seven patrols in the approaches to Gibraltar and in the western Mediterranean before the end of the month. On his outward transit Wearne was engaged in an inconclusive fight with a Heinkel 115 float-plane, and twice during this critical period he sighted U-boats attempting to force their way into the Mediterranean. On 16th December and again on 18th December he dropped his depth-charges ahead of the position in which he observed these U-boats crash-dive—but in each case the final assessment was: "U-boat present—no damage." Disappointing though these results were to a crew whose vigilance on many negative patrols had at last been rewarded by two sightings within three days, even failures added something to the technique of anti-U-boat warfare, and also the keenness of all Sunderland crews. However, patience and care still normally went unrewarded, and Thurston flew eight similar patrols from Gibraltar between 12th December 1941 and 6th January 1942 without incident.

The attack on Pearl Harbour and swift Japanese successes during the early days of war in the Pacific, aroused in all minds fears for the safety of Australia. Despite a natural desire to fight in the immediate defence of their homeland, however, the R.A.A.F. air and ground crews of No. 10 could readily appreciate that it had become even more important to solve the problem of free ocean communication by which Britain and her allies could mount attacks against both eastern and western Axis partners. Over-all plans made it obviously desirable that No. 10, whose equipment,

⁵ Between 16 Nov and 15 Dec 3 U-boats were sunk by naval forces near Gibraltar.

⁶ The number of U-boats traversing the Bay (inwards and outwards) during Dec 1941 was actually higher than in any of the 3 preceding months. The total of passages was 78 of which only 13 were outward-bound for the Mediterranean. The others represented reliefs for or returns from the operational gp in the Atlantic and a stream of newly-commissioned boats coming north about Scotland and thence direct to Biscay ports.

training and experience could not easily be replaced, should remain to cover the Bay of Biscay, Germany's one sea window looking out on to the world. Though this was accepted as axiomatic by the squadron as a whole, individuals longed for some positive action—a direct attack on the enemy to supplement the vital but seemingly negative action of air patrols which restricted enemy freedom of action.

Some sublimation of these emotions came late in December when Hodgkinson sighted an 8,000-ton tanker in position 45 degrees 16 minutes north, 12 degrees 17 minutes west. He closed to investigate and queried its identity by international signal, receiving a prompt but unsatisfactory reply that it was the *Belinder*. The suspicious nature of its course of 285 degrees true and its position some 190 miles north-west of Cape Finisterre were reported by radio to No. 19 Group Headquarters which authorised Hodgkinson to attack. The Sunderland was armed with the normal load of six Mark VIII depth-charges and two anti-submarine bombs, and these were dropped from 1,000 feet in a timed "stick" which straddled the enemy vessel. Tall columns of water obscured the bridge as the Sunderland swept over but the tail gunner reported a large volume of smoke, and the tanker slowed down to four knots and began to trail an oil streak 200 yards wide. Hodgkinson had attacked against determined anti-aircraft fire and the Sunderland received several hits in the hull below the waterline, but fortunately the only casualty was the second fitter who sustained shrapnel wounds in the right arm. After checking position and reporting his attack Hodgkinson returned to base, and encountered en route a Ju-88 which, however, made no attempt to attack.

Hodgkinson's sighting began a determined hunt to the death by available Coastal Command and naval forces. The ship was deemed to be an outward-bound U-boat supply ship or a blockade runner bound for the Far East. Burrage reported and photographed the tanker one and a half hours after the above attack; he did not himself attack as, owing to a temporarily unserviceable wireless set, he had not received the message authorising him to do so. His report that the *Belinder* had turned on to a reciprocal course of 135 degrees was valuable in planning future areas of search, and his photographs permitted tentative recognition of the ship as the *Ole Jacob*, a former Norwegian vessel in enemy hands.

Early next day Costello was dispatched to intercept the tanker before it could reach a French port. After a wide search he finally found it in position 43 degrees 55 minutes north 07 degrees 50 minutes west. The ship appeared to have a slight list to starboard and to be down by the stern, and was being escorted by aircraft. While Costello was manoeuvring for position to make a bombing run, his Sunderland was twice attacked by a Ju-88, and a lively continuous fire came from the ship itself. The nearest bomb in this attack fell thirty yards ahead on the ship's track, so Costello then began to shadow out of range of the medium-calibre guns on her stern. He broke away to inform the destroyer *Vanoc* of the position of the target and returned to close shadowing distance. Some forty-five minutes later an explosion was seen from the direction of *Vanoc* and

when Costello investigated a Ju-88 was seen attacking her. The Sunderland attacked the Ju-88 as it prepared for another bombing run and drove it off into cloud.

After Costello had been forced to return early to base because of heavy petrol consumption during the special manoeuvres of this sortie, Beaufort H/22 made a successful attack on the tanker which beached itself on the Spanish coast. Hodgkinson was given half the credit for the destruction of this ship because of his spirited attack on 23rd December, but it was Costello's accurate report of the enemy's new position which made possible the final crippling blow by the torpedo aircraft.

The first Australian Empire Air Training Scheme men in Coastal Command to earn prominence as captains of aircraft were also active on anti-shipping duties during the last weeks of 1941. From Leuchars in Scotland Pilot Officer Devenish-Meares⁷ of No. 42 Squadron R.A.F. attacked a ship in Norwegian waters on 3rd December. He did not return from a similar strike by six aircraft in appalling weather on 9th December. Pilot Officers Birchley⁸ and Archer⁹ of the same squadron made three and one shipping attacks respectively during this period. The Beaufort torpedo bomber had not proved in action either reliable or capable of defence against enemy air attack, but it was undoubtedly the best aircraft then available, and in the hands of resolute men did achieve some positive success, while still acting as a threat which forced enemy shipping to move cautiously everywhere within its range.

⁷ P-O R. Devenish-Meares, 402156; 42 Sqn RAF. Sharebroker; of Burwood, NSW; b. Ashfield, NSW, 10 Oct 1912. Killed in action 9 Dec 1941.

⁸ F-Lt E. Birchley, 404166; 42 Sqn RAF. Clerk; of Coorparoo, Qld; b. Innisfail, Qld, 20 May 1917.

⁹ F-O R. B. Archer, DFC, 402148; 42 Sqn RAF. Airline station offr; of Rose Bay, NSW; b. Roseville, NSW, 18 Mar 1918. Killed in action 17 May 1942.

CHAPTER 8

BOMBER COMMAND: JUNE 1941 TO FEBRUARY 1942

IT was not possible in mid-1941 to commit Bomber Command as wholeheartedly as Fighter Command to a maximum offensive against the enemy. In retrospect the latter part of this year appears as a period of transition for the bomber force, when plans and preparations were being made for a full-scale bombing program in which were seen many hopes of final victory. From a contemporary viewpoint the pattern was not so clear cut, and there were several divergent factors and voices in counsel, with the result that the marked change in emphasis of bombing application which had its roots in this period came relatively slowly as an interaction of planning, execution and external pressure. It is significant, however, that Bomber Command was set, albeit tentatively at first, on the road of attacking extended target systems by which general attrition, rather than specific damage to German economy, was the goal. A later stage of this process, the "area attack", has indeed come to represent in public minds the hall mark of Bomber Command contribution to the war.

The first R.A.A.F. medium-bomber squadrons overseas began to form in England during the late summer of 1941 and thus began the planned Australian contribution to this form of war. Hitherto as has been seen the only link had been with Australian-born members of the R.A.F. scattered widely on existing squadrons. Very slowly at first (and from this aspect also the period may be regarded as transitional) but then with rapid acceleration, Australian effort within Bomber Command expanded until it became and remained by far the largest call on our oversea air force. Thus the campaign against extended target systems, and the nature and scope of Australian contribution go hand in hand, and will be described *pari passu*. First, however, in order that possible alternatives at various stages of development may be borne in mind, it is intended to review briefly the policies and conditions under which previous bombing attacks had been made.¹ These have been referred to only incidentally in Chapters 1 and 2 of this volume because of the lack of defined Australian contribution.

Bombing policy must always depend upon the numerical strength, range, defensive and weight-carrying capacity of the force available at any given time in relation to enemy defences and counter-measures. At the same time it must conform to current air strategy as a whole which itself is tempered by the offensive and defensive requirements of the general conduct of a war. Before 1934 planning had been circumscribed by the ruling that a major war was unlikely for ten years and by the restriction in range of aircraft. Even when the bellicose intentions of Nazi Germany became

¹ Condensation entails the risk of some distortion. A full discussion of these matters is available in the British Official Histories.

obvious, financial considerations and a desire not to disturb unduly the peacetime structure of the British economy put a severe brake on re-arma-ment plans and progress was very slow. It was not until 1936 that the old omnibus Air Defence of Great Britain organisation split into Bomber Command and Fighter Command. For some time after this emphasis was on air defence and the provision of fighter squadrons rather than on increasing striking power.

The problems of a strategic bombing force had no clear answer in past experience but the influence of Marshal of the Royal Air Force Trenchard² and General Smuts and the untried, independent night-striking force evolved towards the end of the previous war greatly affected British aircraft design and strategical thought. Thus Whitley, Wellington and Hampden bombers were designed, tested and, despite setbacks, built in sufficient numbers to allow the re-equipment of three Bomber Command groups to begin in 1938. Stirling, Halifax and Manchester aircraft of even greater range and striking power were ready as potential replacements. However, when war broke out the total of aircraft actually available for operations was little greater than 500, of which more than half were Battles and Blenheims.³ The Battles were earmarked to form part of the Advanced Air Striking Force with wartime bases in France, and the Blenheims were also regarded as a possible second echelon of the same force. There remained only 250 heavy bombers to implement bombing plans.⁴

So much for the force available, the smallness of which was somewhat obscured by very inflated hopes of the actual capabilities of individual aircraft and crews in reaching targets, and of the destructive powers of existing types of bombs. Plans were by no means wanting for the employment of the heavy bombers. Some of these were basically defensive in strategy, such as that for attack against German aircraft production facilities or one aimed at German naval strength; both such objects if achieved would have limited the enemy capacity to counter-attack directly. One of the main offensive plans was for an attack on western German industrial

² Marshal of RAF Viscount Trenchard, GCB, OM, GCVO, DSO. GOC RFC in Field 1915-17; Chief of Air Staff 1918-29; Commnr Metropolitan Police 1931-1935. Of London; b. 3 Feb 1873. Died 10 Feb 1956.

³

Group	Type of Aircraft	Mobilisable Sqns	Non-mobilisable Sqns	Aircraft actually available
1	Battle	10	5	141
2	Blenheim	10	3	123
3	Wellington	6	4	91
4	Whitley	6	2	75
5	Hampden	6	4	85
		38	18	515

⁴ At this time Whitleys, Wellingtons and Hampdens were classified as heavy bombers, and Battles and Blenheims as medium bombers. When the four-engined types appeared in 1941 they became heavy bombers, the Whitleys etc. medium and the Blenheims light. These rapid changes in terminology are confusing, even more so as the process has since continued and today all these aircraft would be correctly classified as "light bombers".

production by damaging electricity, gas and coking plants upon which all the close-packed Ruhr, Saar and Rhineland industries relied. Communications within this region of highly-interdependent primary and secondary industries were also stipulated as vital targets. Competing for favour with this plan to depress Ruhr output was the original "Oil Plan" which asserted that a campaign against depots, refineries and synthetic plants, by reducing enemy resources of petrol, oil and lubricants as rapidly and completely as possible, would not only depress industry but would starve the supposedly highly-mechanised fighting services.

On the outbreak of war the same overestimation of the bomber weapon which animated the above plans ensured indirectly that they would be dormant for some time. Politicians and public in most countries had been so deluged with gloomy and exaggerated predictions of the effect of bombing against towns that, except in Germany where the air weapon was consciously used as a weapon of intimidation, there was very real reluctance to launch the first bombing attacks. On top of humanitarian sentiment was the very practical fear entertained in France that she, not Britain, would bear the brunt of any German retaliation to R.A.F. bombing and therefore she did not favour energetic action at the outset. One further very powerful factor was the appeal on 1st September 1939 by President Roosevelt urging Britain, France, Germany, Italy and Poland to make public affirmation that they would not bomb civilian populations or unfortified cities from the air. The importance of the United States, even as a non-combatant, to Allied war needs was so great that Britain and France immediately made a joint declaration on 3rd September that they "had indeed some time ago sent explicit instructions to the Commanders of their armed forces prohibiting the bombardment, whether from the air, or the sea, or by artillery on land, of any except strictly military objectives in the narrowest sense of the word" It had previously been decided by the British Government that "military objectives in the narrowest sense" did not include factories, a resolution which was bound to hinder the existing bombing plan. The joint declaration also virtually excluded night-bombing at that time because any inaccuracy might result in danger to civilians. It was in fact decided as an initial action policy to do even less bombing than was permitted under the severe restrictions of the Anglo-French declaration. On 1st September it was decided:

- (a) To take no major action with bomber forces but to conserve resources until Germany by her actions would release Britain from her restricted policy;
- (b) to attack the German Fleet;
- (c) to carry out widespread night leaflet raids;
- (d) to undertake photographic reconnaissance.

Thus it appears that only one of the pre-war plans, the defensive strategy of attacking enemy naval resources was actually put into practice and even that suffered from some limitations.

On 14th September when Poland, the immediate *casus belli*, was already under imminent shadow of total defeat, the War Cabinet reviewed bombing policy and appreciated that so long as Britain adhered to her own bom-

bardment restrictions there was no way in which she could effectively damage Germany. Consequently in defining policy a main factor would have to be Britain's existing great numerical inferiority in bomber aircraft and trained crews. In order to build up the air force it was desirable to conserve existing resources and to keep British factories free from retaliatory attack. Thus the weight of expedience was added to that of principle and the War Cabinet's decision was to adhere to the existing policy and to seize any opportunity for such effective action as an attack on the enemy fleet at sea. As it turned out it suited the Germans equally well to postpone large-scale air warfare in the west and for seven months there followed, at least in the air, the period of inactivity ironically called the "phoney war".⁵ The only addition to Bomber Command's task came on 12th December when, because of the success of enemy mining in the Thames Estuary, the Air Ministry ordered a nightly patrol of one bomber aircraft at low altitude around the seaplane bases of Nordernay, Borkum and Sylt to deter enemy mine-layers from taking off. Crews were specially warned of the vital importance of not attacking objectives on land although on occasion the waterborne flarepath and aircraft alighting or taking-off were bombed and machine-gunned. On 15th March 1940 fifteen German bombers attacked Scapa Flow and three days later the Air Ministry authorised a night-bombing attack on Hornum at the first opportunity with the aim of causing heavy damage to that base.⁶ While the raid was actually in progress on 19th March the British Prime Minister, Mr Chamberlain, publicly and carefully affirmed in the Commons that it was the British reply to the enemy attack on Scapa Flow. After this raid the Directorate of Plans at the Air Ministry gave its opinion that, in view of the still great disparity in forces, such spasmodic retaliatory raids were wasteful and of little military value. It deprecated the air striking force becoming a mere political pawn and urged that its strength should be conserved for use at the right time.

When Germany invaded Scandinavia on 9th April 1940 there was no thought of stationing British bomber squadrons in Norway (the "Oil" and "Ruhr" plans were still official policy although awaiting executive permission before they could be put into effect). The actual employment of the bomber force in this campaign was subject to the limiting condition that they could engage only on operations which could be stopped at a moment's notice, and thus consisted mainly of attacks against enemy-held airfields in south Norway, which began on 11th April. Two nights later, mining, which was to grow into one of the most regular of all Bomber Command activities, began when fifteen Hampdens operated off the coast

⁵ It is perhaps typical of British reaction to circumstance that, although the dangers of bombing and being bombed were by no means underestimated (quite the reverse) servicemen and the general public should chafe once the issue was joined at an inaction which was the apparent antithesis to their previous fears. This period was also popularly known as the "Sitzkrieg".

⁶ *Fuehrer Conferences on Naval Affairs* (1940) shows fairly clearly that it was repeated urging by Grand Admiral Raeder rather than independent action by Marshal Goering which led to this first relaxation of the "bombing moratorium". 30 Whitleys and 20 Hampdens carried the British "reply".

of Denmark.⁷ The effect of Bomber Command operations in this campaign was negligible, and they served merely as an indication that henceforth bombing would be prosecuted; the almost complete embargo on land targets had gone for ever. With this in mind bombing policy was again reviewed and two new directives came into force on 13th April although neither was implemented immediately. One covered the contingency that Britain would begin deliberate bombing attacks without any enemy invasion of Belgium or Holland. This plan utilised both the oil targets and the power targets of the Ruhr plan for a series of dispersed attacks, with a view to creating widespread discontent as well as material damage. The second plan, to come into effect with any German descent on the Low Countries, was for intensive attacks against the oil targets and against marshalling yards in the Ruhr.

This latter plan did not remain long in abeyance because, when Holland, Luxembourg and Belgium were invaded and bombed on 10th May, the shackles began to fall rapidly from British bombing policy. The Advanced Air Striking Force (No. 1 Group of Battles and Blenheims) and the Blenheims of No. 2 Group were assigned the primary task of collaboration in the land battle by impeding the German advance. On 15th May, because of severe losses, Battles were withdrawn from daylight attacks against columns and employed against communications targets in the enemy rear. On the same day, when the mediums had already virtually proved inadequate for their allotted role, the War Cabinet authorised bombing attacks on Germany east of the Rhine and strategic bombing finally commenced. That night ninety-three aircraft attacked oil targets and railway centres in the Ruhr and a similar effort was also made on the following night.⁸ This campaign was hardly under way, however, before the pressing needs of the land battle began to distort the pattern. The French line along the Meuse had broken and, at the urgent request of the French, Mr Churchill, who had replaced Mr Chamberlain as Prime Minister, divided the efforts of the heavies throughout the next three nights between German targets and communication objectives along the Meuse. As the military situation grew more desperate the oil plan was virtually suspended on 20th May and for ten days a bewildering succession of targets (on occasion as many as four entirely different types) were attacked in the hope of influencing the land battle. On 29th May came another switch in policy and targets in Germany were again detailed in the expectation that, apart from material damage, they would sting the enemy into attacking targets in Britain and thus relieve the volume of air attack against hard-pressed France. This directive remained in force until 20th June but was constantly interrupted by calls from the battlefield, and, after Italy entered the war, by demonstrations against Genoa and Turin.

⁷ Mining was held to be the duty of Coastal Cd but because of early troubles with Beaufort aircraft it could not fulfil the task. The mines employed at this time were converted naval types and it was very difficult to fit them into aircraft and the Hampden alone of the "heavies" had suitable stowage.

⁸ A comparable German answer did not come for a week when on 24 May Middlesbrough became the first English industrial town to suffer attack.

There was little confidence that the welter of divergent aims pursued by the bomber force during the six weeks of the Battle for France had achieved any worthwhile military result, and in the sad knowledge that France was lost and that Britain herself must fight on alone, yet another re-alignment of purpose was attempted. The campaign had cost 381 bomber aircraft although only 69 of these were heavies.⁹ No. 1 Group was virtually wiped out and although, on 1st July 1940, it could still officially muster approximately 70 Battles, these aircraft were never again seriously considered and the group began to re-equip as soon as possible with Wellingtons, the most robust of the heavies, the production of which was accelerated. At this date, therefore, the effective strength lay in approximately 200 Blenheims, 110 Hampdens, 100 Whitleys and 150 Wellingtons not all of which were in fact available on a day-to-day basis. One of the obvious tasks appeared to be to reduce the strength of the German Air Force and accordingly on 20th June instructions were given that industries connected with enemy aircraft production, communications in the Ruhr, and oil should be attacked in that order of priority. Within a fortnight, however, the possibility of a German invasion of Britain caused another shift, and on 4th July both heavies and mediums were instructed to attack invasion ports and shipping as their prime task with mining, enemy aircraft industries and oil targets as subsidiary duties. This directive was equally short-lived and on 13th July, although mediums were instructed to continue anti-invasion measures, the heavies were given 5 aircraft depots, 5 aircraft-assembly plants, and 5 synthetic-oil factories as their targets. Three days later a further instruction reached Bomber Command authorising attacks against shipping at anchor inside territorial waters or alongside in any European port in enemy hands. This extended the tactical freedom of the Blenheims and marked a major step away from the Anglo-French declaration of September 1939. On 29th July authority was also given, subject to strict provisos, to extend air bombardment policy to military objectives in enemy-occupied countries. On 9th September came an equally radical change when pilots were instructed that because enemy bombing attacks were clearly indiscriminate in character, they themselves need no longer bring back their bombs if they failed to identify their primary target but could henceforth bomb secondary targets even when these were located in urban areas.

During September 1940 the possibility that the enemy would actually attempt invasion of Britain loomed large and the bomber force was again diverted to strike against barges, ships and dock installations in north-west Europe. This practice was endorsed by a further directive on 21st

⁹ The losses were:

	Battles	Blenheims	Wellingtons	Whitleys	Hampdens
AASF	137	37	—	—	—
RAF Component of BEF	—	41	—	—	—
Bomber Command	—	97	26	26	17

September which placed invasion targets at the top followed by targets connected with enemy aircraft production to which list five new "spot" factories were added.¹ Three squadrons then conducting mining operations were to divert their effort against submarine yards. Finally a list of sixteen rail marshalling yards headed by Hamm were also to be subject to "a moderate scale of effort" being treated as "last resort targets in Germany in preference to aerodromes".

At the end of October the bomber force was again instructed to give first priority to oil targets. Next in importance were the aluminium and component factories already scheduled. This was also considered a suitable time "to demonstrate to the enemy the power and severity of air bombardment and the hardship and dislocation which will result from it" by attacks on objectives in large towns and centres of industry. This was a second deliberate divergence from the original bombardment code; in part it was a natural reply to enemy bombs then falling on London and other cities, but even more so perhaps it was animated by false hopes engendered by bombing theorists—an overestimation of the power of destruction of bombs and an underestimation of human powers of resistance.

Oil targets were again put forward as the "sole primary aim" in a directive of 15th January 1941 when seventeen specific plants were listed and cities such as Hanover, Magdeburg, Bremen and Oppau, all connected with the oil industry, were stipulated for the secondary offensive. This directive had been in force for only eight weeks, however, when on 6th March Mr Churchill issued the famous "Battle of the Atlantic directive" ordering that, until further notice, absolute priority in all directions was to be given to overcoming the U-boat and the FW-200. This change was officially recorded in a new directive to Bomber Command on the 9th.

Thus in 13 months between the opening of the campaign in the west and June 1941 there had been 11 major and many minor directives passed to Bomber Command governing the operations of the strategic bomber force. Throughout this period the attack on enemy oil resources remained the basis of longer-term offensive strategy. Any concentrated or continuous application to this avowed object had been prevented firstly by the need to participate in the French campaign, then to pursue defensive aims when Britain herself was in danger of invasion and finally (again defensively) to prevent the enemy plan for a "siege of England" becoming a reality. There were other diversions from the main aim including attacks for political rather than military ends against Italian towns and Berlin,

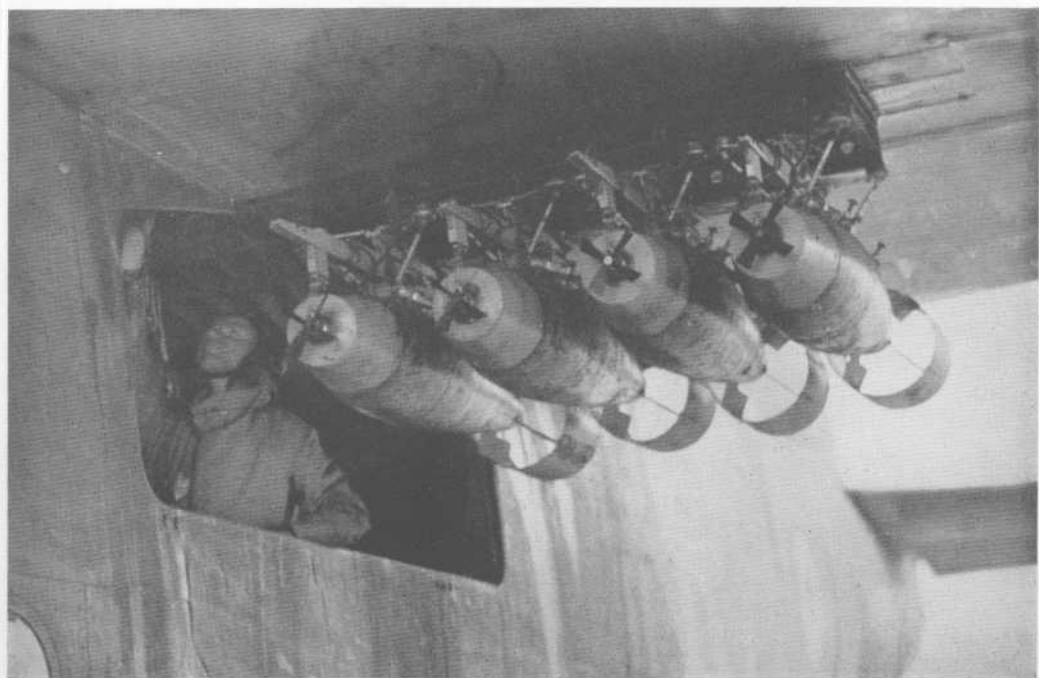
¹ These particular additions included factories making Bosch ignition generators, crankshafts, air-screws and metal alloys. The over-all purpose of maintaining a growing list of such individual targets was to give Bomber Command tactical freedom over a wide area so that whatever the meteorological conditions an approved target could be chosen on any given night. There may also have been in the planners' mind an echo of the April 1940 assumption that spreading attack widely would make the enemy civil population restless.

In general individual targets were chosen by an RAF Targets Committee upon which sat representatives of the War Office, the Admiralty and the Ministry of Economic Warfare. The actual attacks (i.e. the tactical control of operations) lay with Bomber Command itself, within the bounds of the directives sent to it. Policy matters normally originated in the Air Ministry and were reviewed and approved by the Chiefs of Staff and finally by the War Cabinet.



(Air Ministry)

A Sunderland flying-boat of No. 10 Squadron completing its take-off run while on detachment to Oban in western Scotland.



(Air Ministry)

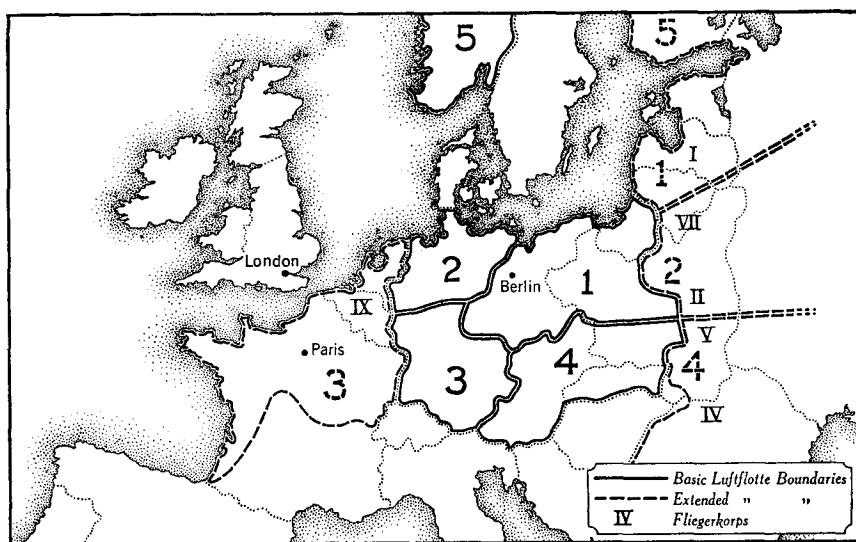
Four early-type 250-lb anti-submarine bombs attached to a Sunderland's bomb rack. On patrol the rack was carried inside the hull and was pushed out to the bomb-release position only when required.



A panorama of Plymouth during the fire raid of 22nd-23rd April 1941 as viewed from R.A.F. Station Mount Batten.

(R.A.A.F.)

these political attacks gradually merging with the dispersed-effort raids, designed to unsettle the enemy, into a more ordered yet relatively undefined plan to attack German civilian morale as such. In these circumstances therefore it is perhaps not surprising that only some 8 per cent of the total tonnage of bombs expended during this period were in fact launched against oil targets.² This situation, however, was far from welcome to the Air Ministry or to Bomber Command which were constantly pressing the view that the central aim of offensive war strategy must be the development of Bomber Command as a striking force. Indeed the apparent impossibility of bringing decisive pressure to bear on Germany in any other way led in June 1941 to a plan for the expansion of the bomber force



Operational areas of *Luftwaffe* commands, June 1941.

to 4,000 by the spring of 1943. This was a paper plan only and was soon to be upset by the recurring crises of war, but its acceptance by the War Cabinet endorsed the existing Air Ministry view that "the war can only be won by developing an overwhelming air offensive". Complementary to this desire for physical expansion (there were only forty-one fully effective night-bomber squadrons at this time) was the feeling that the bomber force should concentrate on one offensive aim without any "overriding demands such as may be necessary in order to maintain the minimum of security measures".

² The tonnages claimed dropped against principal target systems up to the end of Jun 1941 were approximately:

Docks and port areas	8,900 tons
Towns	7,000 tons
Transportation targets	4,300 tons
Aircraft targets	3,000 tons
Oil targets	2,500 tons
Military installations	2,100 tons
Industrial targets	1,800 tons

When, therefore, plans were laid in June 1941 for a re-alignment of bombing policy, many of the main issues appeared to be clarified. Russia was now an ally and, because of enemy deployment in the East, Britain now seemed safe from enemy invasion and freed from the main weight of air attack against her own industries. German U-boat and FW-200 attacks in the Atlantic had waned and although this was primarily due to naval counter-measures, the Air Ministry was able to claim that the pressing need for its own preoccupation to this end no longer existed. The requirements of defensive strategy thus being at least temporarily met, the way was clear for a single offensive policy. The only snag was that during the four months of the Battle of the Atlantic directive, German military and political successes in south-eastern Europe had vastly improved her petrol and oil situation. Oil targets in Germany were consequently no longer a profitable means of depressing enemy economic and military potential and a new target system had to be sought. The optimum use of the bomber force demanded that any such system be one which permitted aircraft to reach it and attack during darkness even on short summer nights, and also one which was so situated that bombs which missed their precise objective would not be entirely wasted but would have a secondary effect against enemy morale. A "Future Strategy Paper" produced in June at the request of the Prime Minister advocated that the short-term targets of our bombing should be:

- (i) The German transportation system, chiefly the focal points of railways and canals.
- (ii) German morale.

This view was accepted and on 9th July a formal directive to Bomber Command defined its main aim as "dislocating the German transportation system and destroying the morale of the civilian population as a whole and of the industrial workers in particular". Nine rail centres³ were specified as primary objectives and six main towns⁴ with important rail facilities as secondary targets.

The plan of 9th July marks an important stage in the development of bombing policy in so far as it outlined a program of area attacks on centres of population on moonless nights when precision attacks on individual targets were not practicable. When destruction of morale was named as an objective it amounted to an admission that the night-bombing was not accurate enough to hit military targets, and that any damage was preferable to none, there no longer being any scruples about hitting enemy civilians. More importantly it represents an indirect method of approach, perhaps favoured by hasty contemporary appreciations of enemy raids on Britain, by which the output of factories was to be reduced, not by material damage, but by voluntary or involuntary absenteeism of workers or inability of machines to run because of general destruction of services

³ Hamm, Osnabruck, Soest, Schwerte, Cologne-Kalk Nord, Cologne-Gereon, Duisburg-Hochfeld, Duisburg-Ruhrort, and Dusseldorf.

⁴ Hamburg, Bremen, Hanover, Frankfurt-on-Main, Mannheim and Stuttgart.

within a community.⁵ It is true that all operations conducted under this directive were aimed at specific targets and so could be deemed a campaign against "spot" targets; morale was officially a secondary objective. However, it was patent at the time that only on some six or seven moonlit nights each month could spot targets be identified and bombed, and because a fundamental of the plan was continuous pressure on all nights, it was tacitly recognised that attacks on other nights would tend to be indiscriminate and might be regarded as directed only against morale.

The whole question of bombing accuracy was causing concern at this time because although the above directive itself contained a very optimistic view of the results which might accrue from even a moderate scale of attack, there were unmistakable signs that only the better crews could find small inland targets. When the Operational Research Section, which was established within Bomber Command during September, made a critical analysis of bombing conducted between August and October it clearly proved that the number and size of bombs required to cause permanent or decisive damage was far greater than had yet been realised.⁶ Furthermore it became apparent that the cumulative effect of inadequate training, inaccurate meteorological forecasts over the Continent, growing effectiveness of German defences, and lack of adequate technical aids to navigation and target identification, resulted in only one aircraft of every five dispatched at night dropping its bombs within five miles of its exact target. Results in bright moonlight or against coastal objectives were fairly satisfactory. However, bombing accuracy fell away steeply against inland targets when the aircraft had to navigate by compass, radio loop and sextant, aided by visual identification of prominent ground features when weather permitted, but always against strong air and ground opposition which confused navigation progressively with the depth of penetration of enemy territory. There was a very real danger, especially as "morale bombing" implicitly depreciated the value of absolute accuracy, that the practice of bombing on estimated time of arrival over the target might become a habit and thus cause even good crews to fail to exercise sufficient perseverance in finding their true objective. One counter-measure which was attempted at this time was to expedite the supply of night cameras so that the area of bomb release might be identified and bombing accuracy

⁵ An interesting though perhaps academic comment on the new policy was supplied on 13 Oct 1941 by the American Chiefs of Staff: "... military operations to be effective should be directed against specific and concrete objectives, and it was not enough to set forth the destruction of morale as a military objective . . . [Bombing offensives] should be directed against specific military objectives which had an immediate relation to German military power in the end. Success in that field should be more destructive of German morale than air offensives against civil populations."

⁶ The development of operational research was one of the chief scientific features of the war. Hitherto science had been chiefly regarded as a source of ideas for new weapons and a method of improving old ones. In the war of 1939-45, however, science entered into warfare in a new degree in that scientific method was applied more consistently and deliberately to the use of weapons and the conduct of military operations. The early application of this method lay largely in the field of radar research but by mid-1941 it was decided to set up operational research sections in all main RAF Commands. This permeation of scientific method into wider and wider aspects of warfare was accompanied by a conception of a general quantitative theory of warfare—a major military calculus involving close study of weapons, tactics and strategy with the object of securing maximum effect by an optimum use of existing resources.

thus checked.⁷ Doubts as to bombing accuracy also partly inspired a new directive on 30th August adding a further twenty-one towns on the main east-west German railways to the original list. The intention was to increase the chances of dislocation by attacks on several towns on the same route in one night, to spread the offensive and thus affect morale, and to cause dispersal of enemy defences which in turn would give more incentive for bomber crews to identify their target.

Equally disturbing was the fact that the bomber force was not expanding as rapidly as had been expected, and indeed there was practically no numerical increase in strength between July 1941 and February 1942. Nor was much progress being made with the formation of Halifax, Stirling and Manchester squadrons, the true heavy bombers upon which the Air Ministry was now depending to carry out the bombardment of Germany in sufficient strength to be effective. All these types suffered from deficiencies in production and the Manchester proved a relative failure on operations. Moreover, increasing enemy defences and the attempt to operate on as many nights as possible during the uniformly bad weather of the autumn and winter of 1941 took a constant toll of existing strength. The climax came on 7th-8th November when 37 aircraft were lost from the 400 sent out. Accordingly the War Cabinet intervened and on 13th November laid down a policy of conserving the bomber force until the following spring. General war strategy, however, once more became paramount early in December when America and Japan both entered the war. Faced with sudden new world dangers at a time when serious naval losses had been suffered in the Mediterranean, the War Cabinet was forced to give support to Admiralty needs. It was certain that a vastly intensified U-boat campaign must be expected in the Atlantic, and the German naval squadron at Brest was now thought to be again ready for action, so on 10th December part of the bombing effort was ordered to be directed to ports on the Biscay coast. The period of transition begun in hopes of a sustained and increasing offensive ended therefore in cautious conservation and a mainly defensive strategic aim.

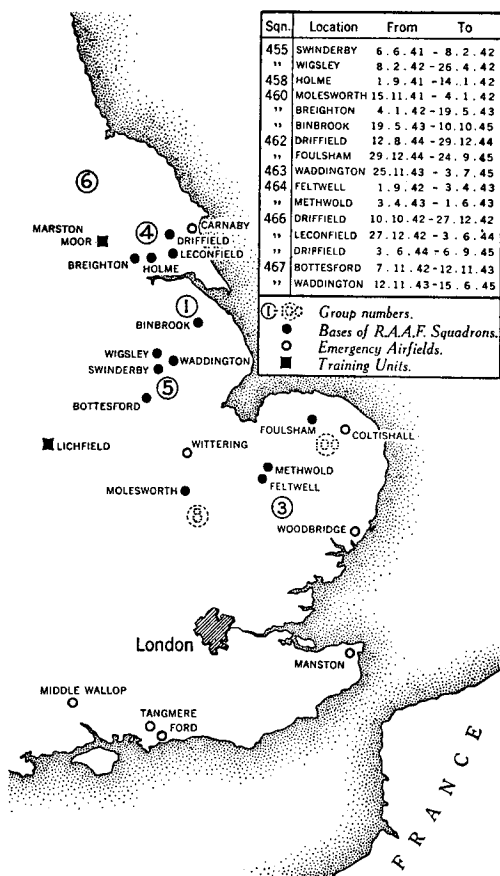
Such were the conditions and aims of Bomber Command when the first R.A.A.F. medium-bomber squadrons began to form in England during the late summer of 1941. Individual R.A.A.F. men had already begun to appear in Bomber Command squadrons as early as March 1941, and by the end of the year some 300 (mostly pilots) had been posted in small numbers to no less than forty-six squadrons, the highest to any one squadron being seventeen, though these were not all present at the same time. A few of these Australians were reposted to the R.A.A.F. squadrons as they formed, but it was normally felt inadvisable to break up a bomber crew, and the majority completed a tour of operations with their original

⁷ Some Australians regarded this as a "Gestapo" measure but there is no doubt that when widely installed they resulted in an over-all improvement in operational discipline.

It is interesting to note that as in many other instances, policy could be partially thwarted at lower levels. Squadron commanders often gave the few available cameras to their *best* crews through a desire to boost the squadron record of target identifications, whereas it was the weaker crews who really would profit most.

R.A.F. squadron. Operational wastage in action, sickness and withdrawals for training duties kept the active number of Australians in Bomber Command at this time to a low figure, so that including R.A.A.F. squadrons, the number actually engaged in strategic bombing in December 1941 was only about 250, although this figure was increasing rapidly, and large numbers were under training in Bomber Command operational training units.⁸

The first Australian medium-bomber squadron (No. 455 Squadron R.A.A.F.) began to form in No. 5 Group, Bomber Command at Swinderby, Lincolnshire on 6th June under the command of Wing Commander Gyll-Murray.⁹ Its formative months amply illustrate some of the difficulties then facing both Bomber Command and the R.A.A.F. The Australian Air Board had intended to supply almost - complete ground staff backing for this and other squadrons, and in fact on 23rd May 1941 ground staff in numbers and musterings approximately commensurate with the needs of a Wellington squadron had been assembled at Williamstown, New South Wales, and styled No. 455 Squadron. In June, however, these men were still in Australia awaiting transport, so eventually on 30th June a skeleton R.A.F. ground staff was provided at Swinderby. On the same day the flight commanders, one of whom was



Bomber Command: Location of R.A.A.F. bases and R.A.F. emergency airfields.

Squadron Leader French, an Australian who had already seen action with Nos. 50, 106, 207 and 97 Squadrons R.A.F., also reported for duty. The first aircraft did not arrive until 10th July and in the meantime there had

⁸ In Jun, 33; Jul, 39; Aug, 91; Sep, 120; Oct, 156; Nov, 170; and Dec, 243.

⁹ W Cdr J. E. C. G. F. Gyll-Murray, DSO, 34105 RAF. 106 and 44 Sqns RAF: comd 144 Sqn RAF 1940, 455 Sqn 1941, 244 Sqn RAF 1942-43, RAF Stn Fort Reitz 1943-44, RAF Stn Shaiba 1944-45. Regular air force off; b. Hove, Sussex, Eng, 14 Jan 1914.

been nothing to do except to inspect and commandeered hutments at Coddington for squadron needs and to organise a makeshift orderly room. A medical officer reported for duty on the 13th, a gunnery and an engineer officer on the 20th and two more Hampdens were flown in on the 21st. The squadron diarist has nothing else to record until 8th August when "93 miscellaneous ground crew", all Australians, arrived and were billeted at Coddington. This was not the Williamstown party (which was still en route to the United Kingdom) but an earlier draft intended for No. 452 Squadron. Some of these men were sent on leave while the others trained for their somewhat unexpected duties with a bomber squadron. August passed quietly with two more Hampdens and a few R.A.F. aircrew being added to squadron strength but it was only on the 29th that French started the operational life of No. 455 when he flew the only available aircraft to bomb Frankfurt-on-Main. Thereafter the pace quickened and a further 226 Australian ground staff joined the squadron on 13th September. The first R.A.A.F. aircrew member arrived a week later followed by several more in subsequent weeks although R.A.F. aircrew predominated for a long time. The squadron began to take an increasing share in normal bomber duties although frequently it had to borrow aircraft from a sister squadron, and it was not until late in November that it could be regarded as being at full strength.

While the tardy arrival of Australian personnel did impede somewhat the formation of No. 455, it was the airfield and aircraft position, especially the latter, which was the real governing factor within No. 5 Group. The Manchester aircraft with which the group was to re-equip had begun operations in February, but had given considerable trouble. On 1st July, therefore, it was decided to ground all Manchesters and this entailed the temporary re-equipment of Manchester squadrons with Hampdens, the production of which was at the same time tapering off in favour of the heavy-bomber program. The infant No. 455, therefore, naturally suffered the same fate as Nos. 450 and 451 in the Middle East—they had to remain idle because there were not sufficient aircraft to fill established and competent squadrons which had greater priority. There was also some minor difficulty in housing the squadron. A number of satellite airfields were still being developed to cope with the ever-increasing intricacy of bomber operations, and No. 455 found itself split at times between Swinderby, Coddington and Skellingthorpe.

Meanwhile on 1st September a second Australian unit, No. 458 Squadron R.A.A.F., had begun to form at Holme-on-Spalding Moor in the East Riding of Yorkshire. The commanding officer, Wing Commander Mulholland,¹ and one of his flight commanders, Squadron Leader Johnston,² were Australians and a number of R.A.A.F. aircrew members were immediately posted in, though R.A.F. personnel predominated for

¹ W Cdr N. G. Mulholland, DFC, 34098 RAF, 48 and 115 Sqns RAF; comd 458 Sqn 1941-42. Commercial pilot: of Brisbane; b. Sydney, 18 Jun 1908. Killed in action 16 Feb 1942.

² W Cdr L. L. Johnston, DSO, 39463 RAF, 207 Sqn RAF; comd 458 Sqn 1942-43, 328 Wing RAF 1943-44, 340 Wing RAF 1944-45. Regular air force off; of Winton, Qld; b. Ingham, Qld, 18 Jun 1914.

some time. The experience of this unit is in sharp contrast to that of No. 455 because it suffered practically no delays or handicaps. It was formed in No. 1 Group which was equipped with Wellington aircraft, and because this type had been given priority above the other mediums there was no difficulty in procuring either aircraft or crews. Within six weeks it was able to conduct its first operation with ten aircraft as against the single Hampden which No. 455 had sent out after three months; and it continued to operate regularly for the remainder of the year. It had in fact grown so strong in numbers that by 24th November it was possible to transfer 4 officers and 117 airmen to a third Australian formation, No. 460 Squadron R.A.A.F. This squadron had begun to form nine days earlier at Molesworth in Huntingdonshire, the R.A.F. again providing one of its experienced Australian pilots, Wing Commander Hubbard,³ to command. This Wellington squadron was to form part of a new (No. 8) bomber group as part of the general expansion, but plans were changed because as seen above conservation not expansion had become necessary and both No. 8 Group and No. 460 Squadron remained virtually in abeyance. Finally, on 4th January 1942, the Australians moved to Brighton, also in the East Riding, to form part of No. 1 Group. The result of this unavoidable delay was that the squadron was prevented from commencing operations before the spring of 1942.

Any assessment of Australian contribution to Bomber Command effort at this period is thus hindered by the fact that while R.A.A.F. airmen in growing numbers, approximately sufficient to man two squadrons, were dispersed as individuals on a large number of Whitley, Wellington and Hampden squadrons, two titular R.A.A.F. bomber squadrons had begun to operate with at first only a small proportion of Australian crews. As the nature of the routine strategic-bomber task, the dangers and difficulties to be faced, and the incidents encountered were the same for all men engaged, the operations of Nos. 455 and 458 may fairly be taken to illustrate Australian participation during this transitional era.

Wellington and Whitley aircraft at this time carried a crew of six: two pilots, navigator, two wireless operators, and one gunner. In all aircraft the wireless operator not engaged in radio duties manned one of the gun turrets, while the navigator and second pilot were also trained to fill these positions in emergency. These aircraft, originally classed as heavy bombers, but now, with the advent of four-engined types, become medium bombers, demanded a far greater degree of crew discipline and cooperation than previous multi-seat aircraft. The pilot had a restricted field of vision and in general could cover only the sky ahead. Approaching danger or the recognition of navigational features in any other quarter could only be reported by those aft of the mainplane and engines which obstructed the pilot's vision. Thus, although the pilot as captain of the aircraft had increased responsibilities for the safety of a valuable aircraft

³ W Cdr A. L. G. Hubbard, DSO, DFC, 40050 RAF, 267508. 70 and 38 Sqns RAF; comd 460 Sqn 1941-42, transferred to RAAF in Jan 1943. Regular air force off; of Strathfield, NSW; b. Echuca, Vic, 24 Sep 1916.

and the lives of several men who relied on his airmanship, he himself was very dependent on the way in which his crew carried out their respective duties. Leadership had become as great a factor as mere flying ability; often indifferent pilots backed by efficient crews came safely through the worst dangers, while excellent pilots with inexperienced or unsettled crews failed to return from sorties during which far less opposition was experienced. This sense of unity knit together the tail gunner sitting isolated at the end of the long fuselage, the navigator in his screened cubicle poring over his maps, the wireless operator eternally listening for instructions from base, or by radio-loop bearings aiding the navigator; and the front gunner straining his eyes to see ahead, above and below for the first sign of danger. The pilot faithfully kept course, watching the flying and engine instruments for any diversion from normal, and poised to react immediately to his companions' reports of approaching fighters or anti-aircraft fire which seemed accurately aimed. Thus, although it was the pilot alone who must resolve within his heart the fears attendant on pressing the aircraft into deliberate attack against heavy defences, and make all decisions on the basis of reports furnished by his crew, it was becoming more and more apparent that the corporate efficiency of a harmonious crew could exceed that of its ablest member, while the efficiency of an unsettled crew tended to approximate that of the most inattentive member.

Men crewed together at operational training units and already accustomed to a common routine did not care to be broken up on arrival at squadrons. The squadrons themselves, backed by group and Bomber Command headquarters, also resisted attempts to disperse established crews, and consequently there was no general transfer either at this time or later of individual R.A.A.F. men to Australian squadrons after they had acquired some operational experience on R.A.F. squadrons.⁴ Where crews were predominantly Australian in composition they could transfer without difficulty, and R.A.A.F. individuals especially desirous of serving on an Australian squadron could and did arrange for their whole crew to be posted with them, but this inevitably meant dilution of R.A.A.F. squadrons and could not be pursued as a general policy. Crew efficiency in Bomber Command transcended national sentiment in practice, and indeed many R.A.F. squadron commanders openly preferred mixed crews of Dominion and British personnel. The differing characteristics of each member created a livelier interest in and from his fellows, and this in turn fostered a more positive identification of their common purpose than in the case of many "national" crews. Indeed such squadron commanders ignored the Commonwealth's expressed wish that Australians should be grouped into crews, and a dozen R.A.A.F. men on one squadron might well continue to serve in seven or more crews.

At this time pilots had not only considerable freedom in choosing their own route to the target but latitude in the manner in which they attacked.

⁴ Because of the simpler crew composition of the Hampden, there were occasions when single Australian crew members were posted to 455 Sqn. This tendency was not, however, favoured by 5 Gp for Manchester or Lancaster sqns and thus soon lapsed.

At a common briefing before the operation they received the latest information about the target itself, the predicted weather, and all enemy defences lying along and to each side of the direct route. An elastic period of time was given for the actual bombing, and having reached the target area some crews might spend up to half an hour trying to identify either the aiming point or some prominent landmark nearby from which they could approach on a timed course, the bombs then being released blind at the estimated time over the objective. All crews who dropped their bombs were credited with having attacked, and this must be borne in mind when considering any of the following bombing tables, for it sometimes happened in this pre-scientific era of bombing that places quite remote from the nominated target received the majority of bombs dropped. This in no way discounts the courage, determination or skill of the men involved, for they were facing difficulties as well as dangers, nor does it nullify the work they were doing or make their sacrifices useless, for only by study of the palpable shortcomings of strategic night-bombing as then conducted, was a more successful method evolved. The later years of target obliteration by compact waves of bombers owe much in tradition to these days of trial and error, however small the immediate results might be.

In the campaign against German transport centres and morale the two new R.A.A.F. squadrons (Nos. 455 and 458) took part in raids during the autumn and winter of 1941 (see Table No. 1). Their sorties were relatively few in number for only the most experienced crews were sent to inland targets, and throughout this period the squadrons were staffed with "freshmen" crews.⁵

The first three raids were conducted by the two flight commanders of No. 455 Squadron, Squadron Leader Reynolds⁶ (R.A.F.) attacking Berlin, and French twice attacking Frankfurt-on-Main. On the second trip French's Hampden was hit by flak before reaching the target but he continued on to bomb and return safely. He employed on this occasion a popular current technique of gliding from 19,000 feet to 9,000 feet before dropping his bombs, cutting the engines so that anti-aircraft sound locaters would be unable to direct battery fire against him. A month elapsed before the next attack, this time against Huls on 12th-13th October, when one R.A.A.F. Hampden failed to attack, and a second, unable to locate the target, bombed a searchlight position. The following night only one of two Hampdens succeeded in bombing Cologne although a number of fires had been started in the target area, and this city was relatively easy to locate because of the Rhine pinpoints. Again three weeks elapsed before another inland target was attempted by the Australians when on 7th-8th November four Hampdens attacked Cologne and four Wellingtons of

⁵ The dispersed RAAF members were engaged on such raids in approximately the same proportion to the whole force.

⁶ W Cdr R. W. Reynolds, DSO, DFC, 40259 RAF. 144 and 207 Sqns RAF, 455 Sqn, 105 Sqn RAF; comd 139 Sqn RAF 1943; W Cdr (Flying) 140 Wing RAF 1944. Regular air force offr; of Cheltenham and Bristol, Eng; b. Cheltenham, 6 Jan 1919.

No. 458 were sent to Mannheim. At Cologne the defences were very active and two R.A.A.F. Hampdens failed to return, and another, unable to identify the target, dropped its bombs in the centre of anti-aircraft fire. Heavy cloud obscured Mannheim and only one Wellington crew

TABLE No. 1

EARLY R.A.A.F. TARGETS

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dispatched	Attacking	Sqn No.	Disp	Atkg			
1941-42									
Aug 29-30	Frankfurt-on-Main	143	101	455	1	1	91	2	—
Sep 2-3	Berlin	50	33	455	1	1	40	2	—
Sep 12-13	Frankfurt-on-Main	116	111	455	1	1	135	2	—
Oct 12-13	Huls	90	23	455	4	3	26	2	—
Oct 13-14	Cologne	39	29	455	2	1	36	4	—
Nov 7-8	Cologne	105	52	455	4	4	58	2	2
Nov 7-8	Mannheim	55	43	458	4	3	44	7	—
Nov 8-9	Essen	54	35	455	2	1	49	6	—
Dec 7-8	Aachen	132	54	458	7	5	54	—	—
Dec 11-12	Cologne	60	43	458	4	4	58	1	—
Dec 27-28	Dusseldorf	132	96	455 458	7 9	7 7	126	7	— —
Dec 28-29	Huls	81	61	455	7	5	60	4	—
Jan 22-23	Munster	47	35	455	2	2	65	1	—
Jan 26-27	Hanover	71	34	455	5	4	38	—	—
Jan 28-29	Munster	84	39	455	9	8	38	5	—
Feb 11-12	Mannheim	49	38	455	3	3	67	1	—

actually observed results, one failing to attack and the other two aiming at fires presumed to be in the town area. In a light raid on Essen the following night, one of two Hampdens had to return because of inter-

communication failure, and the other reported an uneventful sortie. The next raids in this series did not come until December, No. 458 making two sorties early in that month. Seven Wellingtons flew to Aachen on 7th-8th December but one failed to locate the city and another was forced to jettison its bombs twenty miles west of the target when attacked by a night fighter. On 11th-12th December all four Wellingtons dispatched attacked anti-aircraft positions at the estimated time of their arrival over Cologne.

Much better results were achieved at Dusseldorf on 27th-28th December when seven Hampdens and nine Wellingtons were sent out. Two Wellingtons did not attack, one being damaged before reaching Dusseldorf, but the others identified the aiming point and reported bomb bursts close to it. One Hampden was damaged by ground fire while over the target but reached Wigsley base safely. Another Wellington returning at low level saw a Heinkel 111 bomber about to land on an airfield, so attacked and blew it off its own runway. Good results were again obtained by five Hampdens of No. 455 attacking Huls the following night.

The limited offensive against Germany suffered a setback in December when Bomber Command was ordered to switch its resources primarily against German capital ships, as recent losses in the Mediterranean and Pacific together with the initial Japanese success at Pearl Harbour made it imperative to neutralise by air attack Germany's "fleet in being", which otherwise would force the retention in home waters of British capital ships urgently needed elsewhere. Thus No. 455 engaged in only four light raids against German rail targets during January and February 1942 before the end of this transitional period and none of them exhibited any unusual feature. No. 458 was not required for any of these attacks and indeed at the end of January was withdrawn from all Bomber Command duties in preparation for transfer to the Middle East.⁷ Thus in sixteen raids during this campaign the two R.A.A.F. squadrons had furnished only seventy-two aircraft out of a total of 1,308; sixty aircraft had actually dropped their bombs on Germany and only two had been lost, both comparing well with the average for the whole force, but little emphasis can be placed on these figures, for as demonstrated above, few crews actually saw their aiming points, and it was the growing confidence and experience of crews and squadrons that was of lasting importance at this time, far outweighing the often negligible value of the destruction wrought by their bombs.

The second large group of targets for Bomber Command during this period were all connected with the war at sea, and as already stated, this commitment grew very rapidly consequent on the entry of Japan into the war, so that by the end of January 1942 no less than 67 per cent of Bomber Command effort was being expended on these duties. During October 1941 Bomber Command was directed to attack Hamburg, Kiel, Bremen, and Wilhelmshaven whenever the weather was favourable

⁷ This was of course a decision consequent on the widening of the conflict. As will be seen Bomber Cd was to be gravely weakened during 1942 by the needs of other theatres.

for an attack on north-west Germany. The presence of the battle cruisers *Scharnhorst* and *Gneisenau* and the cruiser *Prinz Eugen* at Brest also demanded periodical attack throughout this period. Although this task was regarded by Bomber Command as unlikely to be successfully accomplished and was an unwelcome diversion from other duties, it became in December the most important immediate target of all.⁸ In addition to these major targets a large number of smaller ports along the enemy-occupied coast were attacked by light forces as opportunity offered to disrupt shipping facilities generally and sometimes to destroy specific targets. These minor raids, especially those against ports in the occupied countries, were extensively used for giving initial operational experience to "freshmen" crews on squadrons before they were sent against more heavily-defended areas. In general these coastal targets were far more easily identified and attacked than the transportation targets inland, although there were some surprising failures. Only the raids in which Nos. 455 and 458 actually took part are listed in Table No. 2, although there were many others of the same type, Brest for example was bombed on no fewer than fourteen nights during January, although the R.A.A.F. squadrons took part in three attacks only.

Before detailing attacks by R.A.A.F. squadrons it should be noted that many individual Australians had previously engaged in such raids, notably Sergeant O'Neill⁹ and Pilot Officer C. E. Martin¹ when as captains of aircraft of No. 57 Squadron R.A.F. they pressed home, on 24th July, a very daring formation attack on the enemy warships at Brest. The early operations of both men were characterised by intense determination and courage.

Nine aircraft were lost by the two R.A.A.F. squadrons out of 179 dispatched against these "naval" targets during this period. Opposition at the major targets was always intense, and several times pilots had to coax badly-damaged aircraft back from these raids. Apparent results from their attacks were greater than on targets in the enemy transport system, but nevertheless although more than 1,000 tons of bombs were directed against each of the ports of Bremen, Hamburg and Kiel, and about 500 tons against Wilhelmshaven, no really substantial damage was done in any of these cities. Brest received over 1,000 tons of bombs during December 1941 and January 1942, but the enemy battle squadron, although narrowly missed at times, was still able to slip out of Brest unharmed on the night of 11th-12th February and steam up the English Channel on its way to Kiel. First warned at 11.27 a.m. Bomber Command, which had kept most of its striking force at readiness to contest

⁸ On 19 Dec a signal from the Air Ministry to Bomber Cd stated that the "entry of Japan into the war and their early success against capital units of United States fleet has made neutralisation of enemy capital units a matter of highest priority under the present situation. Max effort up to 50 sorties within tactical conditions should be made against these units every night when weather is sufficiently favourable".

⁹ Sqn Ldr E. H. O'Neill, DSO, DFC, 400030. 57 and 109 Sqns RAF. Salesman; of St Kilda, Vic; b. Hobart, 3 Sep 1913.

¹ W Cdr C. E. Martin, DSO, DFC, 402059. 57 Sqn RAF; comd 460 Sqn 1943, 1 EFTS 1944-45, 5 OTU 1945. Grazier; of Cassilis, NSW; b. Wellington, NSW, 19 May 1910.

TABLE NO. 2

R.A.A.F. TARGETS IN THE SEA WAR

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1941-42									
Sep 15-16	Hamburg	50	34	455	3	3	42	2	1
Sep 20-21	Bremen	2	2	458	2	2	2	—	—
Sep 29-30	Hamburg	95	72	455	1	1	85	2	—
Sep 30-Oct 1	Cherbourg	41	39	455	1	1	44	—	—
Oct 10-11	Dunkirk	23	19	455	1	1	16	1	—
Oct 20-21	Emden	33	31	458	2	2	46	1	—
Oct 20-21	Bremen	154	92	455	3	3	140	4	—
Oct 20-21	Antwerp	35	9	458	7	5	12	3	1
Oct 20-21	Rotterdam	1	1	458	1	1	1	—	—
Oct 22-23	Le Havre	22	20	458	8	8	32	1	—
Oct 23-24	Kiel	71	64	455	4	3	64	1	—
Oct 26-27	Hamburg	115	78	455	3	2	103	5	—
Oct 26-27	Cherbourg	17	9	455	2	2	7	—	—
Oct 28-29	Cherbourg	24	14	458	4	4	22	—	—
Oct 29-30	Brest	16	14	458	5	5	21	—	—
Oct 29-30	Schipol	45	12	455	4	2	15	—	—
Oct 31-Nov 1	Hamburg	123	76	455	2	2	93	4	—
Oct 31-Nov 1	Dunkirk	28	18	458	2	2	28	1	—
Nov 5-6	Cherbourg	27	21	455	1	1	38	2	—
Nov 6-7	Terschelling	1	1	455	1	1	8	—	—
Nov 7-8	Boulogne	22	18	458	1	1	28	—	—
Nov 7-8	Dunkirk	1	1	458	1	1	1	—	—
Nov 8-9	Dunkirk	18	15	455	2	2	21	1	—

TABLE NO. 2—*continued*

R.A.A.F. TARGETS IN THE SEA WAR

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
Nov 15-16	Emden	49	23	458	6	5	25	1	1
Nov 30-Dec 1	Hamburg	129	84	455	5	4	138	13	2
Dec 7-8	Boulogne	19	14	455	4	1	14	—	—
Dec 7-8	Calais	24	23	458	3	2	33	—	—
Dec 11-12	Le Havre	37	9	455	7	4	16	1	—
Dec 15-16	Ostend	25	16	455	7	7	21	1	—
Dec 16-17	Ostend	32	23	458	3	2	37	1	—
Dec 17-18	Le Havre	14	1	455	2	—	2	—	—
Dec 27-28	Boulogne	34	25	455 458	4 2	4 2	35	—	— —
Dec 27-28	Ostend	2	2	455	1	1	3	—	—
Jan 5-6	Brest	154	140	458	5	3	205	—	—
Jan 6-7	Warships								
Jan 6-7	Emden	3	3	455	3	3	2.5	—	—
Jan 7-8	Brest	68	61	458	4	4	90	—	—
Jan 8-9	Brest	151	116	455	7	6	186	1	—
Jan 8-9	Cherbourg	31	11	455 458	2 4	2 4	16	1	— 1
Jan 10-11	Wilhelmshaven	124	91	455	9	8	116	6	—
Jan 10-11	Emden	29	23	455	3	3	26	—	—
Jan 14-15	Hamburg	95	48	455	4	3	73	5	—
Jan 15-16	Hamburg	96	52	455	4	4	74	3	—
Jan 17-18	Emden	28	14	455	2	2	23	1	—
Jan 21-22	Emden	44	16	455	4	3	50	4	2

TABLE No. 2—continued

R.A.A.F. TARGETS IN THE SEA WAR

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
Jan 28-29	Boulogne	48	34	458	2	2	52	—	—
Jan 31-Feb 1	St Nazaire	31	13	455	2	1	17	—	—
Feb 12	<i>Scharnhorst</i> and <i>Gneisenau</i>	244	39	455	9	6	52	15	1
Feb 27-28	Kiel	68	47	455	8	6	75	—	—

any such move, dispatched 244 aircraft in three waves to bomb the ships. Between 2.55 and 6.15 p.m. that day, in execrable weather and against formidable ship-borne anti-aircraft fire and maximum enemy fighter opposition, only thirty-nine bombers succeeded in finding the target. Six Hampdens from No. 455 attacked. Two were hit while bombing but reached base safely; a third aircraft did not return. Pilot Officer Richardson² of No. 12 Squadron R.A.F. also attacked the *Gneisenau*. While manoeuvring to bomb he was hit in the arm by a shell splinter from the rapid, accurate barrage, but persevering he dived to 400 feet and released his bombs across the bows of the battle cruiser. His aircraft was again hit, but he flew safely back to his airfield. These gallant attempts, however, failed to damage the enemy ships, but both were damaged on their way to Kiel by mines laid earlier by No. 5 Group. They were subject to further heavy bombing attacks after they reached Kiel but again they escaped major damage.³ On 27th-28th February six of eight Hampdens from No. 455 dropped their bombs on Kiel but the attack was spoilt by bad visibility and severe icing conditions and achieved nothing.

One further duty for No. 455 was the laying of mines in enemy navigation channels and harbours. This task had been given to No. 5 Group of Bomber Command in April 1940, as Hampdens were then the only aircraft available and able to carry the Mark I modified naval mine on its bomb racks. Soon afterwards Beauforts of Coastal Command and Albacores of the Fleet Air Arm joined in mine-laying which spread from the

² F.O N. W. Richardson, DFC, 404522; 12 Sqn RAF. Industrial chemist; of Innisfail, Qld; b. Mosman, NSW, 15 Nov 1916. Killed in action 6 May 1942.

³ *Gneisenau* which had spent most of its time at Brest in dry dock was indeed virtually scrapped on return to Germany. Hitler had little faith in big ships and Raeder in this instance tacitly agreed that the turrets could better be used for coastal defence and the crews for the U-boat and cruiser arms.

original areas of Denmark and Norway along the whole enemy-occupied coast as far as Lorient. Light naval forces laid many minefields but aircraft were extensively used to "freshe up" existing fields with new mines, and to lay in areas where naval ships could not penetrate. This work demanded navigation of a high order if the mines were to be sown in the exact positions of probable enemy passage. Aircraft normally approached the vicinity of the particular minefield, picked out some prominent landmark, and then made a deliberate timed run before dropping the mine at low altitude. In some areas such as the Baltic and Heligoland Bight where night fighters abounded, this task was not only exacting but hazardous also, but in fields nearer Britain where a swift, low, seaward approach could be made, losses were light. The actual effort expended by No. 455 in this period is set out in Table No. 3.

Although in mid-1941 emphasis was being placed more and more on a night strategical offensive conducted by medium and heavy bombers, a campaign which has become synonymous in public minds with Bomber Command, it must not be forgotten that one complete group was at this time composed of light Blenheim bombers.⁴ In April 1941 the Expansion and Re-equipment Policy Committee agreed that ultimately the light-bomber squadrons should be reduced to a minimum. This was not immediately possible because a forthcoming supply of American aircraft and current training schedules would provide a surplus which could only be absorbed by forming light-bomber squadrons. Some were sent to the Mediterranean and achieved, although at a high cost, commendable results in an anti-shipping role from Malta. Meanwhile these light bombers remained 20 per cent of the numerical strength, though not of the striking power, of Bomber Command itself.

Accordingly a minor campaign, in which both material damage and dispersal of enemy forces were factors, was decided upon and the light bombers of No. 2 Group were committed to daylight operations against Germany and the occupied countries, both independently and in conjunction with Fighter Command during the summer of 1941.⁵ Enemy shipping north of the Strait of Dover, power stations, shipbuilding yards, locomotives, steel works and railway marshalling yards were nominated as targets for these attacks. On 12th August deep penetration of Germany was attempted, fifty-six Blenheims bombing power stations at Cologne, but this experiment was not repeated⁶ and even in France penetration was not attempted farther than the Lille region, the offensive being almost purely tactical and against fringe targets.

⁴ A number of Fortress I aircraft were indeed attached to 2 Gp during this period but they were withdrawn after only 51 operational sorties of which 24 were claimed effective and less than 50 tons of bombs were dropped.

⁵ Operations Circus and Ramrod. For example 550 sorties were flown from Jul to Oct 1941 alone.

⁶ Twelve Blenheims were lost.

TABLE NO. 3

NO. 455 SQUADRON MINE-LAYING SORTIES

	Total Force		455 Sqn		Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Disp	Atkg		
1941-42						
Sep 2-3	15	9	2	2	—	—
Sep 7-8	8	7	2	1	—	—
Sep 11-12	20	19	2	2	—	—
Sep 12-13	10	8	1	1	—	—
Oct 13-14	13	12	1	1	—	—
Oct 20-21	10	3	1	1	—	—
Oct 26-27	5	5	2	2	—	—
Oct 31-Nov 1	18	17	5	5	—	—
Nov 4-5	28	26	5	3	—	—
Dec 23-24	17	7	6	6	—	—
Jan 2-3	36	20	9	9	1	1
Jan 8-9	5	4	4	4	—	—
Jan 22-23	9	6	1	1	1	—
Feb 6	44	37	8	6	1	1
Feb 7	32	25	6	5	3	—
Feb 12-13	20	7	3	3	1	—
Feb 24-25	51	31	9	7	1	—
Feb 25-26	20	10	3	2	—	—
Feb 26-27	27	14	1	1	—	—
Feb 27-28	15	11	1	1	—	—

Few Australians were then flying with No. 2 Group and only Wing Commanders Edwards⁷ and Kyle⁸ were prominent. Two of Edwards' sorties suffice to show the nature of light-bomber activity apart from the Circus operations outlined in Chapter 6. On 15th June, Edwards led six Blenheims of No. 105 Squadron R.A.F. on a search for enemy shipping and sighted a convoy of eight merchant vessels a few miles from The Hague. In the face of intense, accurate pom-pom and machine-gun fire, the Blenheims attacked from a height of only fifty feet. Edwards himself attacked a 4,000-ton ship and after raking the decks released his bombs from mast height, severely damaging the vessel. On 4th July Edwards commanded a gallant attack by fifteen Blenheims on the docks and some factories in Bremen, then one of the most heavily-defended targets in Germany. There were no clouds to effect concealment and the last fifty miles had to be flown overland. Three Blenheims were forced to return before reaching the target but the remaining twelve proceeded, in close formation at low altitude, flying under high-tension cables, carrying away telegraph lines and finally passing through a formidable balloon barrage. The defences had been alerted and all types of ground fire were experienced, four Blenheims being shot down and the remaining eight all hit. Nevertheless waterside objectives were effectively bombed and Edwards withdrew his formation successfully.⁹ These daylight attacks by light bombers, although they achieved some positive results, were perhaps analogous to the commandos in the military sphere. They created nervousness and diversion of war effort along all enemy coasts within their range, but they were not an adequate substitute for a heavy bombing offensive, which by long attrition of enemy industrial potential and morale, with attendant weakening of each of the German armed forces, could prepare the way for British military re-entry to the Continent.

The transition period thus ended with the plans for a bomber offensive and for R.A.A.F. participation in it vastly modified by circumstance. In terms of the whole effort of Bomber Command, the attack on enemy transport and industry dwindled from 72 per cent in August to 40 per cent in January; the attack on French docks and harbours rose from 6 per cent to 45 per cent in the same period. In February 1942 only 20 per cent could be devoted to a strategic offensive while 21 per cent of the effort was made on mine-laying, 17 per cent on German harbours and shipyards, 13 per cent on French harbours and shipyards and 16 per cent against the Brest naval squadron.

⁷ Gp. Capt H. I. Edwards, VC, DSO, OBE, DFC, 39005 RAF. 139 Sqn RAF; comd 105 Sqn RAF 1942-43, RAF Stn Binbrook 1943-44, RAF Stn Chittagong 1945. Regular air force offr; of Fremantle, WA; b. Fremantle, 1 Aug 1914.

⁸ AVM W. H. Kyle, CB, CBE, DSO, DFC, 26141 RAF. Comd 139 Sqn RAF 1940-41, 13 OTU RAF 1941-42, RAF Stns Horsham St Faith 1942, Marham 1942-44, Downham Market 1944. Regular air force offr; of Kalgoorlie, WA; b. Kalgoorlie, 22 Jan 1910.

⁹ Edwards was awarded the Victoria Cross for his part in this action.

CHAPTER 9

SECOND LIBYAN CAMPAIGN

RAPID German advances in Russia during the first months of their initial campaign in 1941 presaged a new threat to the Middle East from the north, for if the enemy reached the Caucasus, an attack could be made early in 1942 either through Turkey or through Iran and Iraq. While air, naval and amphibious forces based in the United Kingdom attempted to preoccupy as large an enemy force as possible in western Europe, General Auchinleck¹ considered that the primary and urgent task of Middle East Command was to eliminate the Axis armies already threatening Egypt from the west before the new danger materialised. Thus during the late summer, while Cyprus, Palestine, Syria and Iran² were all placed in a state of defence, administrative arrangements were begun for an offensive later in 1941 designed firstly to clear the enemy out of Cyrenaica and if possible out of Tripolitania as well, thus securing the entire left flank of the Middle East. Supply difficulties, the absorption and training of reinforcements, and reorganisation of formations on a more mobile basis, all had to be resolved within the Eighth Army (the army in the Western Desert), while the main external prerequisite was adequate support from an air force which was itself undergoing considerable reorganisation.

Hitherto improvisation and unorthodox methods had stretched the capacity of the R.A.F. in the Middle East sufficiently to meet, with varying degrees of success, all its commitments³ in six campaigns undertaken in three continents, but the limit had now been reached and a thorough overhaul and re-adaptation of existing machinery was imperative. This reorganisation, though modified for the immediate problems of the impending land offensive, was to continue during 1942 until R.A.F. in the Middle East was transformed into a powerful modern air force, amply equipped and adequately organised to meet all requirements in war. The reforms immediately required were increased maintenance facilities and greater aircraft supplies via the Takoradi route so that the front line could be maintained even in heavy campaigns; and the creation of subordinate commands to facilitate close control of squadrons in particular areas. Also required were functional divisions for strategic bombers and naval-cooperation aircraft, the formation of self-contained mobile wings containing two or three squadrons, the development and provision of direct air support for operations on land, and thorough operational training facilities so that air effort could be adapted to the particular needs of the

¹ Field Marshal Sir Claude Auchinleck, GCB, GCIE, CSI, DSO, OBE. C-in-C India 1941, 1943-46; C-in-C ME 1941-42. Regular soldier; b. 21 Jun 1884. (He had succeeded General Wavell on 5 Jul.)

² British and Russian forces entered Iran on 25 Aug 1941.

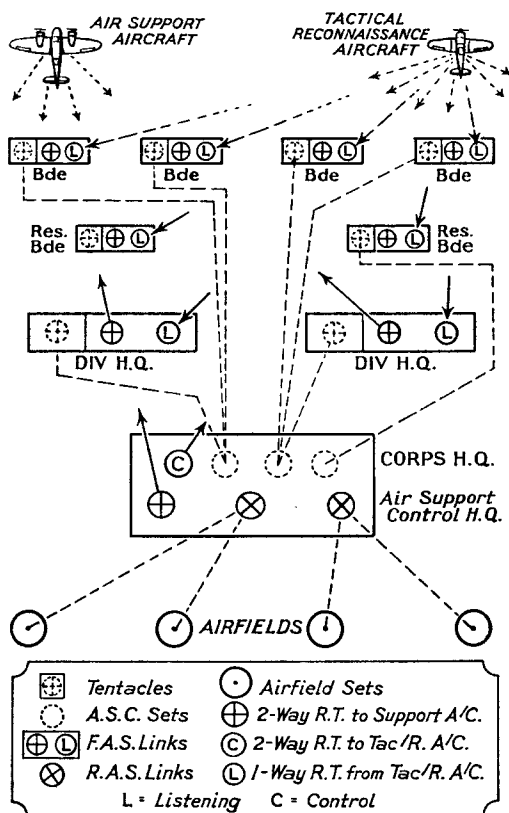
³ Providing aircraft for separate commitments frequently became a question of choosing between priorities. Thus immediately prior to BATTLEAXE the air force had to choose between supporting the forthcoming army advance by attacking enemy communications, and protecting a petrol ship going to Tobruk where at that time only 4 days' supply of petrol remained.

Middle East campaigns. The partial realisation of these aims may be seen in the operations of No. 3 Squadron R.A.A.F. detailed below, but finality was reached only during the spring and summer of 1942.

One of these problems—the development and provision of adequate air support for land operations—deserves some description here because it forms a hidden background to the work of Australians not only in fighter and army-cooperation but also in light-bomber squadrons. Late in September 1941 direct air support was defined as “air action having an immediate effect on the action of our ground forces in battle” and presupposed air superiority to limit enemy interference. At that stage it was not anticipated that the material results of our support would be great, but emphasis was placed on the moral effect of such action. There were two aspects, defensive and offensive. In defence the aim was to impede or halt the enemy offensive in general and to counter dive-bombing in particular. The most suitable targets for the general aim were likely to be outside the range of ground observation; defence against dive bombers on the other hand could be achieved only by local air superiority, which, in its turn, was best gained by a system of offensive fighter sweeps which would have secondary value as reconnoissances. In offence, close

air support could be given by both fighters and bombers. Fighters must first attain air superiority but in the meantime bomber attacks could be made either at medium altitude, in a shallow dive, low level or ground level (50 feet) according to the nature of the target and its defences.

To meet, reject or modify requests for air support, air support controls were formed at this time and attached to corps headquarters. Accordingly



Air support control communications, late 1941.

No. 1 (Australian) Air Support Control commanded by Major Molloy⁴ came into existence in October 1941 and, until recalled to Australia early in 1942, worked intimately with No. 451 Squadron and No. 200 Air Intelligence Liaison Section. The army element of each control comprised two officers and a wireless-telegraphy organisation:

- (a) Seven forward links (tentacles) for communicating with Control headquarters. These were allotted by army commanders to units in the field.
- (b) Three wireless-telegraphy sets at Control headquarters.

Similarly the air element consisted of representatives of units likely to furnish air support and operators for:

- (a) Eight wireless-telegraphy sets, known as Field Air Support Links (F.A.S.L.) for controlling support aircraft and receiving news from reconnaissance aircraft.
- (b) Two sets known as Rear Air Support Links to communicate directly with the airfields concerned.
- (c) Four sets for use at the operational airfields.

After consultation with army commanders reconnaissances were flown over areas in which air support might be required. On receipt of a request either from an aircraft or a "tentacle" the air support control had to decide where support could be given. If so tentacles were informed of the appointed time and composition of the force so that army plans could be made accordingly.⁵

The land offensive was finally timed to commence on 18th November, but as early as 14th October the R.A.F. began, albeit on a modest scale, operations directly connected with the forthcoming Operation CRUSADER. At first nine fighter, one army-cooperation, six light-bomber and five medium-bomber squadrons were controlled by Air Headquarters Western Desert,⁶ but during the preparatory period, principally by transferring units from the more remote areas of the Middle East, a further six fighter, five and a half light-bomber, and two army-cooperation squadrons were concentrated on forward Egyptian airfields. At this time also No. 1 Air Ambulance Unit R.A.A.F. was brought down from Gaza and on 21st October placed under the operational control of the Deputy Director of Medical Services, Eighth Army. Thus except for medium bombers, by the end of the preliminary period the strength of Air Headquarters, Western Desert, had almost doubled and immediate local superiority in numbers seemed likely, although the enemy had incomparably larger air

⁴ Col A. D. Molloy, VX18. 6 Aust Div Sigs; CO 1 Aust Air Support Control Unit 1941-42; Chief Signals Offr 1 Aust Corps 1943-44, First Army 1944-45. Regular soldier; b. 12 Dec 1909.

⁵ During the CRUSADER offensive there was one major modification. All requests were referred to AOC Western Desert. The ASC at Corps HQ merely relayed requests without sifting and informed the units likely to be involved.

⁶ Nos 33, 112, 229, 238 and 250 RAF, 1 and 2 SAAF, 3 RAAF and a naval sqn (fighters); 11, 45, 55 and 113 RAF, 12 and 21 SAAF (light bombers); 37, 38, 70, 108 and 148 RAF (Wellingtons); and 451 RAAF (army cooperation). The Wellington bombers of 257 Wing (which became 205 Gp on 23 Oct) were not strictly speaking a part of WDAF. Normally they came directly under HQ RAF ME and were allotted to WDAF for operational control when the situation demanded their employment in a tactical role.

forces elsewhere in the Mediterranean which could if required be transferred to Libya.⁷

The main aims of the R.A.F. between 14th October and 12th November (D minus 6) was to weaken the enemy air strength by attacks on Axis shipping, supply organisations and lines of communication; neutralising enemy airfields especially those used by German fighters and dive bombers; and winning air superiority over the triangle formed by Bardia, Tobruk and Maddalena, in which area German fighters were most likely to be encountered. The duties of the R.A.F. formations followed naturally. No. 205 Group (Wellington medium bombers) concentrated on bombing Benghazi and other ports. No. 3 South African Wing of light bombers attacked supplies and dumps in rear areas and Gazala and Tmimi landing grounds, while No. 270 Wing of light bombers staged daylight attacks on the remaining airfields. The fighters were now in three wings and of these No. 258 Wing (No. 3 R.A.A.F., No. 2 S.A.A.F., No. 112 and No. 250 Squadrons R.A.F.) maintained offensive action over Cyrenaica and escorted the light bombers and reconnaissance aircraft over enemy territory, while No. 269 Wing was responsible for interception of enemy aircraft over Egypt, and No. 262 Wing remained in reserve to protect the Delta area, provide reinforcements for the forward wings, and to control squadrons newly arrived in the Western Desert. The reconnaissance squadrons, of which only No. 451 Squadron R.A.A.F. was available before 30th October, had to locate all enemy formations, establish the disposition of armour, defensive lines, gun-pits, dumps and minefields; check on traffic on desert roads and determine the flow of supplies through enemy ports. Pinpoint and overlap photographs were required to a depth of forty miles behind the enemy front. Aircraft from Malta commenced a coordinated attack on ports in Sicily and southern Italy, shipping at sea, and Tripolitanian ports and maintenance bases.

To achieve these objectives bombers in Egypt during this period flew 630 sorties—393 against ports, 139 against airfields, 88 against enemy positions and 10 against ships at sea, while Malta-based bombers flew a further 500 sorties—321 against ports, 84 against airfields, 70 against shipping and 25 against enemy positions. While these bombing activities proceeded according to plan weaknesses soon appeared in R.A.F. fighter operations, because suitable wing and section leaders were lacking. This was mainly due to the loss of truly offensive initiative during the preceding lull in desert warfare, and the increasing number of pilots reaching Middle East squadrons with only brief or no operational training.⁸ The squadrons

⁷ Considerable political pressure from the Dominions was at this time devoted to the problem of ensuring that land forces had adequate air support, but it was impossible to give any definite estimate of the total enemy air opposition likely to be encountered; for while Italian squadrons formed two-thirds of the Axis air forces in Libya, the *Luftwaffe* morale was extremely high, and the recent appearance of the Me-109F gave the enemy an aircraft superior in performance to existing RAF types in the ME.

⁸ The heavy losses in pilots incurred in the Greece and Crete operations had inevitably led to the increase in the Middle East of pilots with little operational training and even less operational experience. Previously the dearth of operational aircraft had militated against the setting up of OTU's which were only at this time coming into being in the Middle East. The urgent need for forming new squadrons or keeping old ones up to strength meant that many pilots, especially Australians posted direct from home or Rhodesian flying schools, were fed in to learn their trade "on the job". This situation combined with a prolonged period of defensive operations

who had fought in Syria were less affected than the others, but it became necessary not only to procure experienced pilots from England to stiffen squadrons, but also to withdraw units in turn for training in offensive tactical methods. Experiments with fighter formations of varying sizes during this preparatory phase also led to the decision to form operational flying wings of two squadrons thus creating two operational wings within each administrative wing. All fighter squadrons were also made fully mobile, No. 3 on 3rd November being divided into three groups—No. 1 servicing party, No. 2 servicing party and rear party (headquarters, workshops, stores and transport). While No. 1 party was on the move to a forward airfield, the aircraft were maintained by No. 2 party which quickly followed the flying complement when it moved, relieving No. 1 party so that it could again advance. This arrangement ensured that the squadron could operate continuously when the land battle became fluid. Again, to ensure maximum operational capacity, squadron strength was established at eighteen Tomahawks plus seven in sealed reserve not to be employed without permission of the air officer commanding.

The period before 12th November 1941 was somewhat uneventful for No. 3 despite their forward location. Until 30th October their sorties comprised 34 as escort for reconnaissance aircraft, 10 as escort for bombers, 30 on shipping escort, 4 on interception duties, 9 on independent offensive patrol and 30 on offensive wing sweeps, and at no time were the Tomahawks engaged in combat. During early November operations consisted almost entirely of patrol and interception duties over Eighth Army units moving into position for the offensive, and again all eighty-one were uneventful. The squadron remained based at Sidi Haneish (LG-102) although most of the 198 sorties were made from Sidi Barrani (LG-110). No. 2 Operational Wing comprising No. 3 R.A.A.F. and No. 112 Squadrons, formed on 3rd November but did not operate as such during the preliminary phase. The elevation of Wing Commander Jeffrey to lead this wing necessitated the recall of Squadron Leader Rawlinson from No. 71 Operational Training Unit to command No. 3 Squadron.

No. 451 Squadron based at Sidi Barrani (LG-75) had begun its programme of reconnaissance specifically connected with the Eighth Army's requirements on 11th October, and between that date and 14th November⁹ flew 48 tactical-reconnaissance, 30 photographic-reconnaissance and 4 artillery-reconnaissance sorties with very commendable results, although two aircraft failed to return on 12th November. The squadron was still dependent on a majority of English and South African pilots but more R.A.A.F. "freshmen" pilots were arriving. On 16th October a new com-

and aggravated by the continued use of out-of-date defensive tactics due to army and navy pressure had tended to weaken the offensive spirit of the fighter pilots.

However, although Australians were particularly handicapped through lack of OTU experience they were by no means a weak link. Many were lost, and Sqn Ldr Caldwell would have been an exception in any company, but the text will provide frequent examples of other Australians who were by no means lacking in dash and offensive spirit.

⁹ The slightly differing dates employed here result from a functional separation of reconnaissance activity from the main RAF pattern of operations.

manding officer, Squadron Leader Williams,¹ took over from Squadron Leader Pope.

Although definite air superiority could not be claimed by 12th November, much had been accomplished, for the Axis supply position had deteriorated, enemy dispositions had been determined, and no real opposition had been met by British fighter sweeps. Accordingly with only six more days before the offensive began, Air Headquarters Western Desert began to move its units forward. Bomber squadrons were unaffected but Nos. 258 and 262 Fighter Wings advanced to Sidi Barrani on 12th November and again to Maddalena (LG's 122, 123, 124, 125) on 18th November without ceasing operations, one wing headquarters controlling all squadrons while the other was moving, and the squadron mobility scheme working well in practice. On 14th November arrangements for army cooperation were finalised when No. 208 Squadron was attached to the headquarters of XXX Corps and No. 451 to the headquarters of XIII Corps. Operations concurrently underwent a change of direction, bombing activity switching from rear areas to targets close behind the battlefield with the object of limiting the supplies immediately available to the enemy during the initial shock of the offensive.² Fighter operations were deliberately curtailed to deceive the enemy, only seventy-one offensive sorties being flown and the remaining 203 flights being devoted to cover troop movements. A special operation was staged, however, on 17th November designed to cause the maximum damage to German fighters immediately before the battle began, as it was anticipated that German dive bombers and Italian aircraft would present few difficulties in the absence of the Messerschmitt 109F. Blenheims, escorted by No. 2 Operational Wing, led a naval fighter squadron in an attack on Bir el Baheira landing ground to achieve this aim. The purpose of the bombing was three-fold for in addition to any direct damage, it indicated the exact position of the target to the strafing Hurricanes which followed at low level, and distracted the attention of the anti-aircraft crews from the new danger. This attack went well but unfortunately could not be repeated for shortly afterwards enemy fighters were withdrawn to Gazala out of R.A.F. fighter range, and timely withdrawal continued to keep them out of range. As a result the R.A.F. had to revert to the policy of fighter sweeps to destroy the Messerschmitts in the air.

In this week before the opening of the second British Libyan offensive, the Australian squadrons were relatively inactive. Including the operation against Bir el Baheira, No. 3 Squadron flew only thirty-six sorties without once meeting air opposition. No. 451 flew only three reconnaissance sorties during the last three days while No. 1 Air Ambulance Unit, now able to operate three DH-86 aircraft and one Lodestar attached from the South African Air Force, stood by for orders.

¹ W Cdr R. D. Williams, 39835 RAF, 28 Sqn RAF; comd 451 Sqn 1941-42, 74 OTU RAF 1942. Regular air force offr; of Bangor, Caernarvonshire, Wales; b. Upper Bangor, 7 Mar 1913.

² In the week prior to 18 Nov bombers flew 132 sorties against ports and bases, 127 against air-fields and 30 against enemy positions and lines of communication.

The essence of the Eighth Army's plan was the destruction of German armoured vehicles. To achieve this the best British tanks were concentrated in XXX Corps, which was to open the offensive by striking towards Tobruk and seizing the ridges of Belhamed, Sidi Rezegh and Schifet el Adem, which dominate for some miles the Tobruk by-pass and the Trigh Capuzzo. In the expectation that the German armoured divisions could not ignore this threat, they would be drawn and engaged on ground of our own choosing. At an appropriate moment the Tobruk garrison was to break out and take the enemy in the rear. Meanwhile XIII Corps was to contain and isolate enemy positions on the frontier and then advance to assist XXX Corps, while light mobile forces from Giarabub and Siwa oases were to harass lines of communication behind the battle area and interfere with any enemy withdrawal westwards.

Fortune favoured the Eighth Army at the outset, for a very heavy rainstorm swept Cyrenaica during the night of 17th-18th November. This left enemy airfields water-logged and a proportion of the German tanks and motorised units immobile, while XXX Corps, operating inland and on the eastern fringe of the drenched area, could still carry out the original plan. Armoured cars crossed the Trigh el Abd and advanced to Gabr Saleh with no air and little ground opposition. At dawn XIII Corps units had likewise pushed through the frontier defences and solid progress on both sectors continued throughout 18th and 19th November. Advanced elements of the 7th Armoured Brigade had then reached the Sidi Rezegh area, while, on the eastern flank of XXX Corps, the 4th Armoured Brigade had made contact with the German *15th Panzer Division*. On the frontier XIII Corps was astride Debeua Ridge and the New Zealand Division had advanced along the Trigh el Abd to support the flank of the XXX Corps. The Royal Air Force gave full support during these two days, taking advantage of the absence of enemy air opposition to bomb the advanced landing grounds, while long-range fighters visited the rear airfields strafing any targets they could find. Short-range fighters policed the whole battlefield, No. 2 Operational Wing covering the XXX Corps' advance on 18th November without meeting the enemy. Two wing sweeps followed on the 19th as it was expected that enemy aircraft would resume operations if their airfields dried out. The sweeps themselves were not opposed but Flight Lieutenant Fischer, forced to return early with engine trouble, was intercepted in the frontier area by four Messerschmitts. He turned to join battle and destroyed one enemy machine before he himself was shot down. The enemy pilots continued to attack his aircraft on the ground but Fischer escaped with shrapnel wounds only. This action was fought near LG-132 to which No. 451 had just moved, and the Messerschmitts now proceeded to attack the dispersed Hurricanes, damaging three of them.³ This squadron had flown five tactical reconnaissance sorties over the Omars, Capuzzo and Gambut areas during these two days, reporting enemy movements

³ To enable operations to continue unchecked a flight of 237 Sqn which had been in reserve, was attached to 451.

westward along the Trigh Capuzzo; one aircraft had given timely warning to 4th Indian Division of the presence of enemy tanks. On 18th November, a Hurricane was shot down over Sidi Omar but the pilot, Lieutenant Andrew,⁴ returned next day on foot. No. 451 also made three flights from Tobruk over the Acroma-El Adem area to estimate possible dangers from that region which might interfere with the garrison's proposed break-out towards Bu Amud.

Serious enemy reaction became evident on 20th November when the two German armoured divisions came fully into contact with armoured brigades of XXX Corps west of Sidi Omar. The outlook for the offensive now appeared favourable for not only had the enemy armour thus been brought to battle, but XIII Corps was in a position to strike northwards behind Salum and Bardia, while the Tobruk garrison had also completed its preparations, and accordingly both these forces were ordered to advance on the 21st. General Rommel's reaction was prompt and vigorous, both the *15th* and *21st Panzer Divisions* disengaging and racing north to Sidi Rezegh where they found only the 7th Support Group and the 7th Armoured Brigade. The Germans attacked immediately to profit from their immediate superiority in numbers and armament, before other British armour could arrive. Shortly before dusk the 22nd Armoured Brigade reached Sidi Rezegh, and the British units, although reduced in strength, held on to their positions until the following evening when they were forced to retire to the south. The tank battle continued throughout 23rd November, and again the heavier German tanks were successful in weakening British units, so that any immediate prospects of a link-up between XXX Corps and the Tobruk garrison seemed remote. However, although plans had miscarried at Sidi Rezegh, XIII Corps had driven north behind the frontier positions, isolating Salum and Bardia, and the R.A.F. had redoubled its efforts to give decisive help in the ground struggle. On 20th November No. 3 flew twenty-two sorties as escort to bombers attacking targets on the battlefield and also joined with No. 112 Squadron in a successful sweep over the 7th Armoured Division, during which each squadron claimed two Me-110 aircraft destroyed. Operating alone on the following day No. 112 scored a further success when Sergeant Leu,⁵ Sergeant Carson⁶ and Flying Officer Jeffries between them destroyed two CR-42's near El Adem. These fighter sweeps became more vital as enemy air activity increased, because although it had been hoped to benefit from newly-installed radar facilities at Tobruk and Sidi Barrani, in practice these failed to give adequate early warning of enemy aircraft.

It so happened that the Axis fighters also adopted a system of fighter sweeps at this juncture, with the object of clearing the air for their dive

⁴ Maj W. G. Andrew, 103150 SAAF. 451 Sqn, 40 Sqn SAAF; comd 225 Sqn RAF. Student; of Bloemfontein, S Af; b. Graaf Reinett, Cape Province, S Af, 26 Feb 1920.

⁵ F-Lt R. M. Leu, DFM, 404178; 112 Sqn RAF. Jackaroo; of Beaudesert, Qld; b. Nelson, BC, Canada, 1 Feb 1915.

⁶ F-Lt K. F. Carson, 404233; 112 Sqn RAF. Bank clerk; of Brisbane; b. Childers, Qld, 30 Jun 1920.

bombers, and, although No. 3 flew two uneventful sweeps on 21st November, the following day it engaged in an air battle which did much to determine the subsequent course of events. During the morning of the 22nd the Australians were escorting Blenheim bombers near Bir el Gubi when at least fifteen Messerschmitts attacked as the bombers were making their run. The ensuing fight resolved itself into a contest between the superior speed of the Messerschmitt and the manoeuvrability of the Tomahawk and went slightly in favour of the former, two Germans and three Australians being shot down. The same afternoon unencumbered with bombers, Nos. 3 and 112 met twenty Messerschmitts to the south-east of El Adem and a straightforward air battle for fighter superiority developed. The Germans again had the advantage of speed, climb and ceiling, so after some preliminary and wary manoeuvring, both formations fell into defensive circles, with the Germans above the Tomahawks. The circles flew round and round, individuals pulling out as opportunity offered to attack any of the opposing circle momentarily unprotected, but in effect a deadlock ensued as neither side could break the other. The evening closed in until it was hardly possible to see the enemy, and finally the Germans, who were farthest from their bases, flew off westwards, and the Tomahawks landed at adjacent landing grounds returning to their own base the next morning.

In spite of inferior machines, No. 2 Operational Wing had held its own, and the German Air Force never challenged our fighter force in straightforward combat again during the campaign, but resorted instead to raider tactics with small numbers of aircraft. Far reaching as were the effects of this engagement in determining air superiority, however, the Australian losses were heavy. The wing destroyed three Messerschmitts and damaged several more, but from No. 3 alone six pilots were shot down although Wing Commander Jeffrey and Sergeant Simes⁷ subsequently rejoined their unit, which, having lost nine aircraft in these two engagements, was unable to operate further until 24th November. No. 112, of whose nine pilots engaged six were Australian, lost only one aircraft, but here again the pilots found it necessary to spend the night on advanced landing grounds. Only Pilot Officer Bartle,⁸ who was credited with one Messerschmitt, flew directly to his base. Sergeant Burney,⁹ the airman temporarily missing, force-landed near enemy armoured vehicles but escaped in the dusk and reached the 4th Indian Division after walking thirty miles across the desert.

During these four days of the battle for Sidi Rezegh, No. 451 had continued its unspectacular task of fulfilling the reconnaissance requirements of XIII Corps around Halfaya-Salum-Capuzzo, extending later to Gambut as the New Zealand Division pushed west along the Trigh

⁷ Sgt R. H. Simes, DFM, 402259; 3 Sqn. Grocer; of Tenterfield, NSW; b. Tenterfield, 28 Oct 1919. Killed in action 9 Jan 1942.

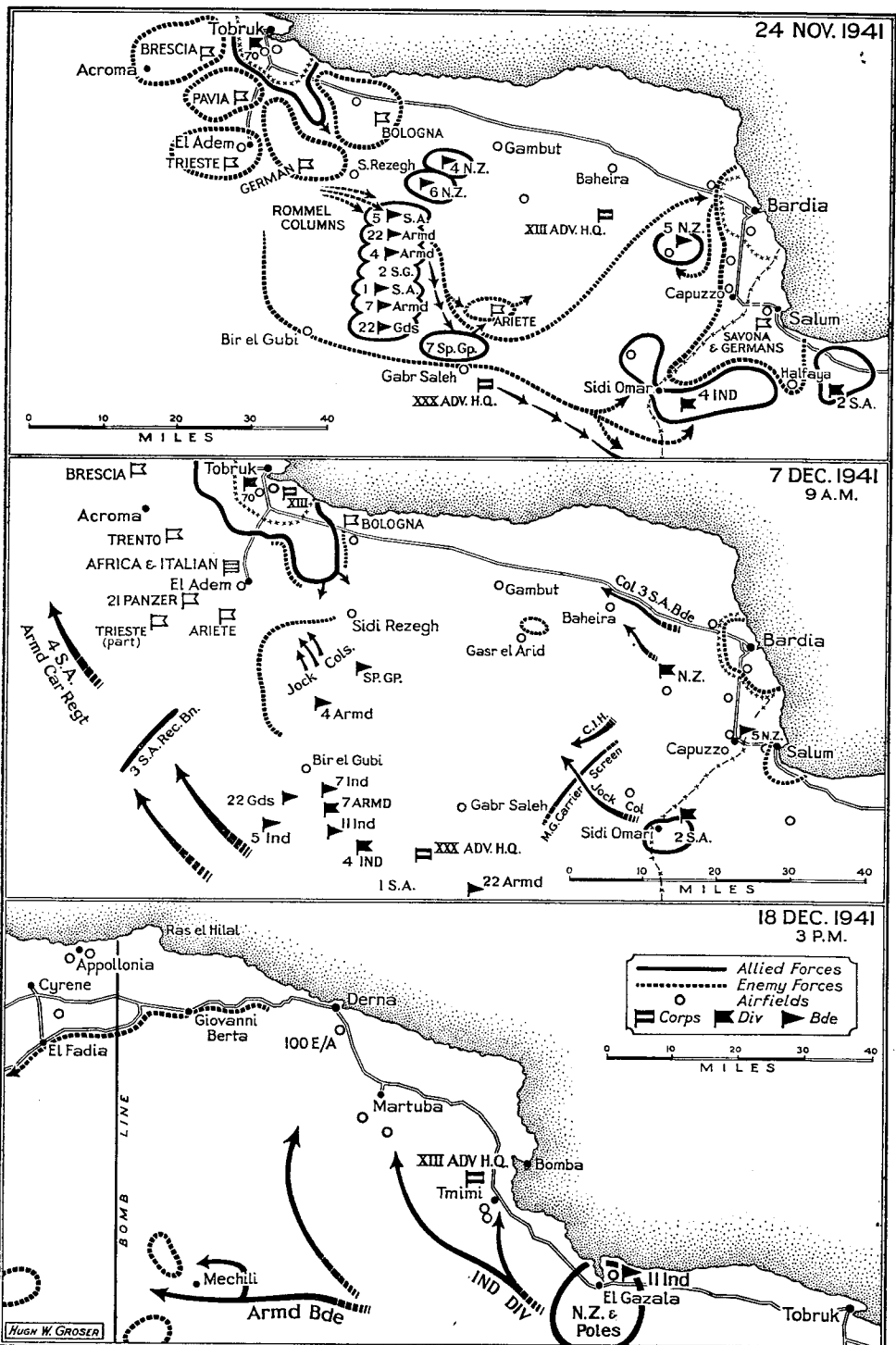
⁸ Sqn Ldr J. P. Bartle, DFC, 406171. 112 Sqn RAF; comd 1 Air Ambulance Unit 1942, 450 Sqn 1943. Stock and station agent; of Mt Hawthorn, WA; b. Coolgardie, WA, 6 Jun 1917.

⁹ P-O H. G. Burney, 402343; 112 Sqn RAF. Share broker's clerk; of Croydon, NSW; b. Croydon, 6 Dec 1915. Killed in action 30 May 1942.

Capuzzo.¹ On 23rd November, when the headquarters of XIII Corps moved forward to Bir el Hariga, the advanced party of No. 451 set out for Gasr el Arid. Unfortunately the enemy was still active between Marsa el Cheteita and Gambut, and the army liaison officer with all his codes was captured, though the main party delayed by a puncture had meanwhile fallen in with New Zealand troops and was safely diverted to Sidi Azeiz. The loss of these army-cooperation codes was more than ordinarily serious, for later, advanced corps headquarters became separated from No. 451 and communication was possible only by radio, although a new emergency code was prepared which sufficed for immediate needs. During this time the aircrews at Sidi Omar were ignorant of what had happened and when four Hurricanes flew to Gasr el Arid at first light on 24th November they found it unoccupied but were met by hostile fire in the vicinity. Later that morning Williams again flew to Gasr el Arid, and, finding the position unchanged, landed in the desert near the headquarters of XIII Corps to discover the reason. He was then able to lead his squadron to Sidi Azeiz and operations were resumed from there.

By the evening of the 23rd the plan for CRUSADER had gone awry and all hope of a quick success against the German armoured divisions had gone. The tank strength of XXX Corps was considerably reduced, while the enemy quickly salvaging and repairing his own armoured vehicles, and employing many transports captured around Sidi Rezegh, was undoubtedly stronger. Rommel, with his characteristic preference for bold and even reckless action, decided on a counter-stroke, and on the 24th gathered the bulk of his tanks and sent them swiftly down the Trigh el Abd towards Bir Sheferzen to destroy Eighth Army dumps and cut lines of communication leading north to the Trigh Capuzzo. Advanced and rear headquarters of XXX Corps were overrun and at 4 p.m. that day the German thrust crossed the wire barrier south of Bir Sheferzen and swung north-east to attack British supply columns. In a few hours the whole battle area was thrown into confusion, and air support was urgently demanded to check the enemy. As Rommel was employing a large percentage of captured British vehicles and both enemy and Eighth Army columns were moving eastwards at full speed it was singularly difficult either on the ground or in the air to determine which were hostile; and bombing that day did not appreciably interfere with enemy movement. Early in the afternoon No. 2 Operational Wing escorted Maryland bombers attacking El Adem where the raid had originated, but during the actual stampede No. 3 was called on only to intercept six enemy aircraft reported to be approaching LG-122 at Maddalena to which by nightfall all forward R.A.F. squadrons had been recalled, the latecomers landing on a flare-path improvised with hurricane lamps. In all some 175 aircraft congregated at Maddalena and the German column swept by on its drive into Egypt only ten miles to the northwards thus missing an incomparable opportunity of wrecking R.A.F. fighter strength.

¹ During 1942 this division was restyled 2nd Div NZEF.



Phases of the Second Libyan Campaign.

On the morning of 25th November the German columns took advantage of the confusion created during the previous afternoon by dividing into compact groups both east and west of the frontier wire and damaging whatever lay in their path. Enemy tanks passed within five miles of No. 451 at LG-132 (Sidi Omar) and the main squadron party retired to an airfield twenty-two miles east of Maddalena although the advanced flying party remained located at Sidi Azeiz. Meanwhile, both on land and in the air, counter-measures were in operation. Mobile columns harassed the flanks of the enemy columns which were also attacked by all available bombers and fighters. No. 3 was called on twice early on the 25th to perform tactical reconnaissances of enemy movements and then with No. 112 the Australians strafed at low level the main German concentration south of Sidi Omar. This attack appeared very successful in damaging enemy vehicles, but in the face of ground fire was relatively costly. One pilot crash-landed and escaped with the personnel of No. 451 evacuating Sidi Omar airfield, a second crashed and was killed, while Flying Officer Jewell was forced down between two columns of enemy transport vehicles. He hid in a hole but was later captured by a small detachment of Germans who asked the way to Sidi Omar. Jewell misdirected them and two hours later on the approach of a car containing New Zealand troops he seized his opportunity and leapt from the German car which went off at high speed.

The same afternoon Jeffrey led Nos. 3 and 112 in an offensive sweep near Sidi Rezegh where New Zealand brigades from XIII Corps were approaching Belhamed in an attempt to aid XXX Corps (then regrouping) and cause dislocation of Rommel's plans. In the air the Germans reacted violently to this new threat and when, at 3.15 p.m., No. 2 Operational Wing arrived, they found Ju-87's, with fighter escort, bombing from 6,000 feet, Me-110's, also escorted, bombing from 1,300 feet and a similar formation at 10,000 feet, with a top cover of German and Italian fighters. The whole enemy force amounted to about seventy aircraft. While No. 3 dived to attack the Me-110's, which had begun to scatter, No. 112 engaged the enemy fighters and, amid scenes of wild enthusiasm on the ground, ten enemy aircraft were destroyed, three probably destroyed and eight damaged.² No. 3 naturally had greater opportunity of personal success in attacking the bombers, and their claim amounted to seven destroyed, one probable and eight damaged, for the loss of one Tomahawk, thus brilliantly avenging their numerical reverse on 22nd November.

One enemy column began to thrust northwards towards XIII Corps during the afternoon of 25th November, and Hurricanes of No. 451, reporting the column's movement, were engaged on nine sorties that day. Despite heavy air attacks it pressed on and leaguered that night within five miles of Bir el Hariga where the headquarters of XIII Corps was established. The next day it advanced to within a mile of Bir el Hariga but then withdrew to the south-east to lie between Sidi Azeiz and Capuzzo.

² This battle was witnessed not only by the New Zealand troops but by advanced posts of the Tobruk garrison.

At Sidi Azeiz the advanced party of No. 451 was taken into the armed camp established by the 5th New Zealand Brigade, the pilots sleeping beside their machines. The expected attack came early on the morning of the 27th and part of the Australian maintenance party was overrun and captured,³ but the four Hurricanes took off in the dark without any kind of flare path in an attempt to observe and report progress to the New Zealand troops.

Despite this further enemy thrust, General Auchinleck determined to continue with his plans, and, in an Order of the Day, instructed all units to attack and pursue the enemy raiding parties, which indeed had already passed the peak of their tactical initiative, the bulk of German tanks passing into Bardia on 26th November. Meanwhile the 4th and 6th New Zealand Brigades, encouraged by the air victory of the 25th, had, after bitter fighting, captured Belhamed and Sidi Rezegh on successive days and made contact with the Tobruk garrison which had itself advanced to Ed Duda. Once more German communications were endangered, and so, on the 27th, both sides converged on Sidi Rezegh, the British to strengthen the link made with Tobruk and contain German armour to the eastwards—where without supplies it must eventually become inactive—and the Germans to drive a wedge once more between Tobruk and the Eighth Army. Throughout these two days the R.A.F. maintained a heavy assault on German forces, but No. 3's share was relatively small, although on a wing sweep during the morning of the 26th one Messerschmitt 109 was shot down by Sergeant Cameron.

During 28th November a narrow corridor was opened between Sidi Rezegh and Tobruk along which after nightfall passed the headquarters of XIII Corps. But even while the valley between Belhamed and Sidi Rezegh ridges was being cleared of the enemy, the 7th British Armoured Division, which attempted to oppose the advance of two similar German divisions, suffered heavy losses. Beginning on the 29th the infantry at Sidi Rezegh accordingly had to face heavy German attacks against which they had no counter. The New Zealanders held tenaciously to their positions all that day, but Sidi Rezegh fell on the 30th and Belhamed on 1st December, the Tobruk garrison again being isolated.

This second Battle of Sidi Rezegh entailed ceaseless operations for No. 451, first in giving continuous accurate reports of enemy progress towards the ridges, and then, when it passed with XIII Corps into Tobruk, in covering the battleground itself. Twenty-six sorties were flown in these four days, the squadron receiving special commendation for its tireless and effective reconnaissance. The combatant squadrons essayed to offset the power of the German armour by pressure from the air. On 28th November No. 3 escorted Blenheims to bomb a German column driving west from Gasr el Arid and the next day the Tomahawks swept the Sidi Rezegh area, though without result. No. 2 Operational Wing scored

³ Two offrs, 10 airmen and 4 attached army rankers were captured and taken to Bardia. Maj A. D. Molloy and Capt A. P. Fleming of 1 (Aust) Air Support Control were also captured but effected a daring escape after being held for several days.

one of its spectacular successes on the 30th, however, when the morning offensive sweep discovered fifteen Ju-87's escorted by a force of twenty-five Italian and German fighters approaching to attack the New Zealanders at Sidi Rezegh. The enemy jettisoned their bombs as the Australians dived to attack while No. 112 stayed up as top cover. In a brisk running fight No. 3 claimed eight enemy machines destroyed and twelve damaged, while No. 112 also destroyed three Italian fighters, Leu, one of the most pugnacious of the many Australians on that squadron, shooting down a G-50. Two Tomahawks of No. 3 returned safely but badly damaged, and Cameron was shot down after a hectic dog-fight. He managed to crash-land unhurt and was seen by Jeffrey who landed and, abandoning his parachute, stowed Cameron (easily the biggest man on the squadron) into the cockpit with him and returned to base. The total of enemy aircraft claimed by No. 3 since it first began operations had now reached 106 but the heavy fighting during November had cost 16 Tomahawks and 10 pilots. Thus after four interception sorties on 1st December, during one of which Sergeant Wilson shot down a Ju-88, the squadron stood down until replacement pilots and machines could be obtained.

Despite the failure for the second time to secure the Sidi Rezegh positions, General Auchinleck still considered that the offensive might yet succeed, so by regrouping and assimilating some fresh troops arriving from Egypt he prepared to attack El Adem, whose possession would confer the same advantages as Sidi Rezegh. Rommel, however, apparently divined this move and withdrew all units except garrison troops previously maintained east of Belhamed and laid both his armoured divisions in front of El Adem and Sidi Rezegh. Nevertheless XIII Corps was ordered on 7th December to attack from Tobruk and by the end of the next day had cleared all enemy forces from the south-east, and that same day the Germans began a general withdrawal towards Gazala. Throughout this week of tension leading to the final relief of Tobruk the Hurricanes of No. 451 were busy reporting the movement of enemy troops, in particular the German preparations for an attack on Ed Duda on 4th December. These flights greatly aided XIII Corps in deploying its forces within the Tobruk perimeter, which had grown to forty-four miles, and the Hurricanes also cooperated with artillery batteries in this sector.

No. 3 did not operate during this week, but the temporary alignment of Nos. 112 and 250 Squadrons as an operational wing brought together most of the R.A.A.F. pilots outside No. 3. Two notable air victories were won by this wing, the first on 4th December when at least six enemy aircraft from a large formation of Ju-87's and fighters were destroyed between El Adem and Sidi Rezegh, and the other the next day, again near El Adem. On this latter occasion Caldwell was leading No. 250 with No. 112 as top cover when forty Ju-87's and some fifteen fighters were met fifteen miles south of El Adem.⁴ As on previous occasions No. 112 engaged enemy fighters while No. 250 dived to destroy the vulnerable

⁴ According to 250 Sqn. 112 Sqn reported 30 bombers and 30 fighters.



(General Press, London)

On 5th February 1942, at R.A.F. Station Skellingthorpe, a tractor takes bomb trolleys to a Hampden of No. 50 Squadron R.A.F., a unit in which many Australian aircrew served.



(General Press, London)

A heavily-laden Hampden of No. 50 Squadron R.A.F. prepares to move down the runway to take part in a raid on Hamburg, 5th February 1942.



(R.A.A.F.)

A Hampden of No. 455 Squadron standing in front of a Wellington bomber early in 1942. Portion of a Whitley bomber may be seen behind the Wellington's starboard wing. These three types formed the backbone of Bomber Command during 1939-42.



(R.A.A.F.)

At Leuchars (Coastal Command) airfield in Scotland a crew of No. 455 Squadron leaves their Hampden torpedo bomber after completing a test flight. Left to right: Sgt J. Mellor (R.A.F.); F-Sgt E. M. H. Knyvett; F-O W. Austin (captain); F-Sgt C. F. Marshall.

Stukas. Australian claims were very high, Flight Lieutenant Caldwell himself shooting down 5 Ju-87's, Sergeant Cable⁵ 2, Sergeant Whittle 2 and one probable, and Pilot Officer Twemlow⁶ 1 and 2 probables out of the total squadron score of 11 destroyed and 3 probably destroyed. One Australian and 3 other pilots failed to return from No. 250 but a further 9 casualties were inflicted on the enemy by No. 112. Leu shot down a Macchi 200 and Bartle a Ju-87 and a G-50, the last-named being chased at low level through a curtain of enemy ground fire before it was destroyed. Although poorly defended, the Stukas put up a considerable return fire during the battle; and Caldwell's phenomenal success was largely due to the cold determination with which he always pressed in close, and his intelligent gunnery sense. Extracts from his combat report reveal these characteristics:

I was leading the formation of two squadrons, 112 acting as top cover to 250 Squadron to patrol a line approximately 10 miles west of El Gubi and had just reached this position at 1140 hours when I received R/T warning that a large enemy formation was approaching from the north-west at our own height. Both squadrons climbed immediately and within a minute the enemy formation consisting of Ju-87's with fighter escort was sighted on our starboard side 250 sqn went into line astern behind me and as 112 sqn engaged the escorting enemy fighters, we attacked the Ju-87's from the rear quarter At . . . 300 yards I opened fire with all my guns at the leader of one of the rear sections of three, allowing too little deflection, and hit No. 2 and No. 3 one of which burst into flames immediately, the other going down smoking and went into flames after losing about 1000 feet. I then attacked the leader of the rear section . . . from below and behind, opening fire with all guns at very close range. The enemy aircraft turned over and dived steeply down with the root of the starboard wing in flames . . . [at another Stuka I] opened fire again at close range, the enemy caught fire . . . and crashed in flames near some dispersed mechanised transport . . . I was able to pull up under the belly of the one at the rear holding the burst until very close range. The enemy aircraft dived gently straight ahead streaming smoke, caught fire and then dived into the ground

The Axis withdrawal, begun on 9th December and continuing through the next few days until positions extending from Gazala to the Trigh el Abd were reached, was in no sense a disorganised retreat, and was effectively covered by armoured rearguards. XIII Corps was ordered to pursue the enemy while XXX Corps turned back to reduce the enemy garrisons in Bardia and Salum. This reorganisation and increasing supply difficulties delayed any serious pressure against the Gazala positions until 12th December when, while infantry maintained a steady frontal offensive, the 4th Armoured Brigade began to mass round the enemy's southern flank. Before this threat was fully effective, Rommel on the 16th appreciated the inherent danger and withdrew all his forces, falling back rapidly to the coast road south of Benghazi. The struggle for eastern Cyrenaica was now over but pursuit was not easy as British transport resources were already fully strained. For a week after the abandoning of Gazala there

⁵ F-Lt W. O. Cable, DFC, 404495; 450 Sqn, 250 Sqn RAF, 452 and 457 Sqn. Constructional engineer; of Earlwood, NSW; b. Sydney, 16 Feb 1915.

⁶ F-Lt F. M. Twemlow, DFC, 402684; 250 Sqn RAF. Bank clerk; of Strathfield, NSW; b. Randwick, NSW, 21 Mar 1918.

was no serious engagement. As the battle moved westwards the British air units made every effort to keep pace with the advance, fighter wings moving to El Adem as early as 12th December. Bomber support, however, fell away in intensity with increasing distances from base, the necessity to withdraw squadrons for refit and rest, diversion to other tasks and the consistently intractable problem in a fluid campaign to distinguish friend from foe with sufficient accuracy to allow large-scale bombing in forward areas. Frequently the light bombers stood by for long periods waiting for orders which did not arrive, and this inaction proved disappointing to the seventy Australians scattered among four Blenheim squadrons of No. 270 Wing. Total bomber sorties between 9th and 16th December were only 151 although the following week they rose to 278, while fighter effort remained as high as before but changes in emphasis occurred to meet existing conditions. During the first week of the German withdrawal 579 offensive sorties were flown, but enemy attacks against our forward units had decreased so markedly by the 16th that only 265 sorties of this nature were made in the second week. On the other hand the number of strafing sorties increased from forty in the first week to 205 in the second, and bomber-escort flights from fifty to 198. Local-defence sorties fell from 224 to 167, further evidence of declining enemy efforts.

Before it was withdrawn on 16th December to re-equip with Kittyhawk fighters, its sixth aircraft type in fifteen months, No. 3 flew 108 sorties on sweeps and patrols over XIII Corps with the object of grinding down the enemy fighter force. Four combats resulted, the first early on 9th December when the Australians were surprised by six Me-109's south of El Adem and in a confused dog-fight three Tomahawks and one Messerschmitt were shot down, although Cameron, who had been forced to land west of El Adem, turned up safely three days later. During the afternoon of the 12th, No. 3 swept the forward area between Gazala and Bir Hacheim destroying one Me-110 and probably destroying one Ju-88 for the loss of one Tomahawk which collided with another aircraft of the formation.

The next day fighters were especially active to prevent interference with the flanking movement of the 4th Armoured Brigade and No. 2 Operational Wing intercepted an enemy formation over Tmimi. No. 3 speedily shot down three fighters and also a lone Ju-88 discovered on the return flight, but No. 112 fared badly, suffering damage to several aircraft and the loss of one Australian. On the morning of the 14th No. 3 again had somewhat the worse of an indecisive engagement with Stukas and eight Me-109's, losing two Tomahawks while only one Ju-87 was claimed.

Although this squadron ceased operating on 16th December Australians on other squadrons continued to fight with varying success. Already on the 9th Flying Officer Waddy⁷ of No. 250 had shared in the destruction

⁷ Gp Capt J. L. Waddy, DFC, 402685. 250 and 260 Sqns RAF, 4 Sqn SAAF, 92 Sqn RAF; comd 80 Sqn 1944-45; CAF Mbr Air Bd since 1950. Clerk; of Rose Bay, NSW; b. Sydney, 10 Dec 1914.

of an Me-109 and while the same squadron was escorting Blenheims back from an attack on Derna, Pilot Officer Nitschke,⁸ Twemlow and Whittle were hotly engaged in a determined battle with six Me-109's and twelve Macchi 202's, repulsing the enemy aircraft of which two were seen to crash.⁹ On the 20th while Blenheims were bombing the Benghazi-Tocra road, No. 250 again beat off twelve Messerschmitts, Caldwell and Waddy each claiming one destroyed and Sergeant Coward a probable, while Nitschke failed to return. On the same day Burney of No. 112 shot down a Ju-88, though the squadron lost two Australians on another sortie that afternoon. Both Nos. 112 and 250 participated on 22nd December in a strafing attack on Magrun airfield, severely damaging Ju-52 transport aircraft on the ground while Twemlow shot down a Stuka which he found preparing to land. Over Agedabia on the last day of this period Pilot Officer Sands¹ of No. 112 claimed an Me-109.

As the enemy fell back from El Adem, No. 451 continued to furnish intelligence of the changing situation, beginning on 10th December to photograph the gun positions and other prepared defences of the Gazala line where Rommel was expected to make a stand. Extensive reconnaissance was required in support of the 4th Armoured Brigade, and in four days ending on the 15th, twenty-four tactical reconnaissance sorties were flown from Tobruk and Acroma, ranging the desert as far west as Mechili. On the latter date No. 451 was informed that it would shortly transfer to operate with XXX Corps, but further sorties were flown until the squadron went to an airfield in the Maddalena group on 18th December. The squadron's departure was the occasion of a special message of congratulation from XIII Corps; between 18th November and 18th December No. 451 had flown 128 tactical and photographic sorties and four on artillery cooperation, a role which brought it little limelight but which was of considerable importance to the ground offensive.

As the pursuit of the main enemy forces passed Benghazi it became urgently necessary to reduce the Axis garrisons athwart the coast road at Bardia, Salum and Halfaya, and as their airfield was remote from these positions, No. 451 returned on 24th December to their old advanced base at Sidi Azeiz. A few flights were made to locate small ships and submarines thought to be running supplies to the hard-pressed garrisons, but the squadron's main task was tactical reconnaissance and artillery cooperation. There was no air opposition and anti-aircraft fire was negligible so the Hurricanes were able to remain over the targets at low altitude for long periods. Despite difficulty in air-to-ground radio communications, artillery cooperation produced very satisfactory results. Gun pits were regularly and successfully engaged, hits on Bardia pier were registered on the 28th and two days later a dump was destroyed and a

⁸ P-O R. H. Nitschke, 407180; 250 Sqn RAF. Jackaroo; of St Peters, SA; b. Adelaide, 18 Jul 1915. Killed in action 20 Dec 1941.

⁹ The credit for this does not seem to have been allocated.

¹ Sqn Ldr K. R. Sands, DFC, 406265. 112 Sqn RAF; comd 450 Sqn 1943-44. Clerk; of West Perth, WA; b. Perth, 15 Jul 1917.

ship sunk by controlled artillery fire. In all, nineteen sorties of this type were flown before the fall of Bardia on 2nd January 1942. Some 385 bomber sorties were flown against the fortress during this period, the opportunity being taken to give "freshmen" crews valuable experience against an ill-defended target, and the results of these attacks were carefully noted by No. 451 which devoted twenty flights to tactical and two to photographic reconnaissance.

The capture of Bardia meant the release of the squadron personnel captured at Sidi Azeiz on 27th November, although the three officers had been evacuated to Italy in a submarine. The released men had been treated well, but, mainly because of a general shortage of supplies, had had little food and were very weak. Salum and Halfaya continued to resist, so pilots of No. 451 resumed daily reconnaissance of the two areas and began artillery cooperation again on 5th January. Salum fell by the morning of the 12th without bombardment from the air, but 281 bomber sorties were made against Halfaya before it capitulated on the 17th. During these latter two sieges No. 451 made 68 flights: 29 tactical, 9 photographic and 30 artillery sorties. The squadron was now withdrawn from the Western Desert and proceeded later in the month to Rayak in Syria for non-operational duties.

After leaving Gazala on 16th December Rommel retreated swiftly to Agedabia, keeping ahead of the pursuing XIII Corps until the 23rd. The R.A.F. made great efforts to keep up with the advance, one maintenance party arriving at Mechili airfield as the last Germans were leaving, stores and petrol arriving the next day, so that within twenty-four hours four squadrons were based there. Two days before Benghazi fell, Msus was cleared of obstructions and No. 258 Wing of fighters brought forward immediately.

Despite these efforts, however, there was an inevitable decline in effectiveness of air support, for continuous operations had so reduced serviceability that four squadrons could now only provide one sweep in wing strength instead of two as formerly. Bombers were diverted to targets in Greece and Crete as well as eastern Cyrenaica, while the old difficulty of establishing a bomb line still remained. No. 3 which had been collecting and servicing its Kittyhawks, did not reach Msus until 27th December. Now commanded by Squadron Leader Chapman,² it resumed operations the following morning when, with the few serviceable Tomahawks of Nos. 112 and 250, it made a reconnaissance sweep between Agheila and Marsa Brega, reporting enemy armoured units south-east of Agedabia and west and north of Ridotta el Gtafia. Later that day the same squadrons covered a British column moving towards Agedabia, and on 29th December the 22nd Armoured Brigade probed the enemy positions although it was forced to retire the next day when engaged by superior forces. During these two days No. 3 flew four assignments each of

² Gp. Capt D. R. Chapman, 80. Dep Dir Training RAAF HQ 1939-40; comd 23 Sqn 1940-41, 3 Sqn 1941-42, 451 Sqn 1942-43, 4 SFTS 1944-45, 84 Wing 1945. Regular air force offr; of Renmark, SA; b. Tenterfield, NSW, 8 Sep 1912.

twelve sorties, mingling troop protection with bomber escort and reconnaissance, but no enemy aircraft were seen. Twice on 31st December the Agedabia-Gtafia-Haseiat area was patrolled, and, though during the afternoon a half-hearted attack was made by Messerschmitts on the accompanying South African squadrons, the Australians were not engaged.

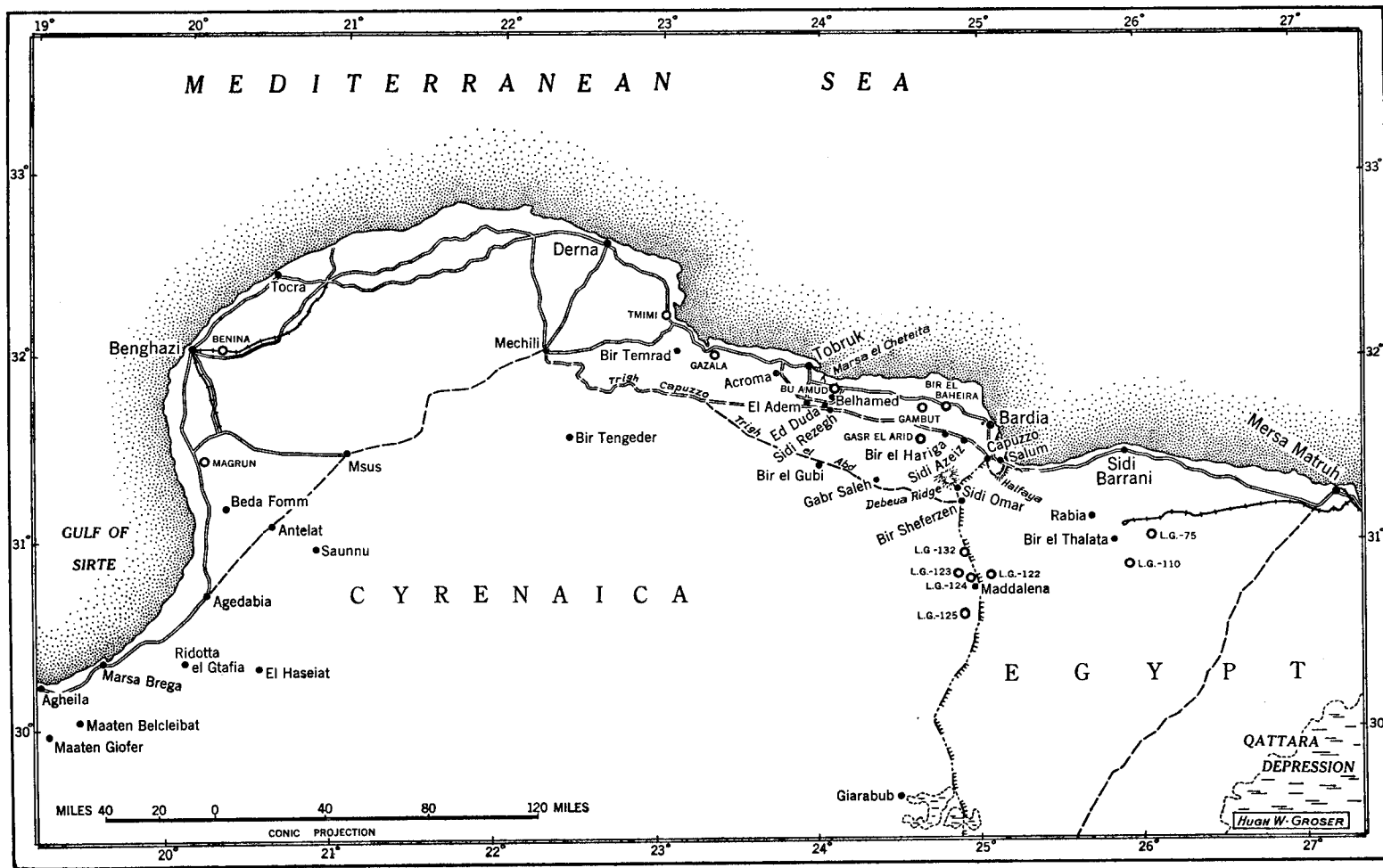
Being the only fighter squadron at full strength No. 3 at this period was detailed for all sweeps, the complement being found from the other four squadrons of No. 258 Wing, and two similar sweeps over Agedabia followed on 1st January. The morning sweep passed without incident, but in the afternoon the pilots were at last able to try their Kittyhawks in combat. A deadlock had ensued on the ground since 30th December, but now sixteen Ju-87's with six attendant Me-109's were seen about to bomb British troops fifteen miles east of Agedabia. The enemy fighters made little attempt to intercept and climbed above cloud, while the Stukas, after jettisoning their bombs, crowded into a defensive circle at 200 feet. This manoeuvre probably saved them from worse losses, but, as it was, Fischer, Flying Officers Spence³ and Barr⁴ each claimed one Ju-87 destroyed and others were damaged before they broke away. The most successful pilot, however, was Sergeant Cameron who reported on return:

As most of the formation appeared to be about to attack the bombers, I endeavoured to lead Blue section into the Messerschmitts and followed these with several Kittyhawks after me. When I emerged from the cloud, they were circling above and as I appeared to be alone, I decided to break off and jump them from above. I came back through the clouds, warned the Kittyhawks . . . then went away and climbed to 12,000 feet. When I came back I could see nothing above or below cloud so went to Agedabia to intercept them on their way home. Here the cloud base was irregular at about 3,000 feet, and after I had done a couple of circuits, three Me-109's turned up and prepared to land on Agedabia West. I let them get settled down and then dived on one, but had to alter my attack and dive on another one head-on. I had a long burst at it and saw it flick upside down as it went under me. This was at 1,000 feet. The others by this time had their wheels down so I stalked the rear one who was only about 500 feet. After only a short burst he dropped his nose and crashed. I then attacked the other from astern, saw him waver as I fired, but immediately had to climb to avoid some Stukas that were now coming in. Icing conditions were severe in the cloud, my ring sight being thickly crusted and the motor showing signs of ice in the carburettor. I attacked a line of 5 or 6 Stukas just about to land and saw the rear one slide away as I shot at it then went for the leader. He kept ahead on a straight glide into the desert while the main group turned left and landed. I flew in and out of cloud for some time, but as two of my guns were stopped and the reflector sight useless, I thought it unwise to remain longer.

Cameron's personal score was one Ju-87 and one Me-109 destroyed and one probable, the total squadron tally gave great satisfaction, and the Kittyhawk had fully justified itself. The next six days were uneventful, however; although sixty-eight sorties were flown on similar sweeps, no further enemy opposition was met.

³ W Cdr L. T. Spence, DFC, 270839. 3 Sqn; comd 452 Sqn 1944, 8 OTU 1945, 77 Sqn Korea 1950. Bank clerk; of Longreach, Qld; b. Bundaberg, Qld, 4 Apr 1917. Killed in action, Korea, 9 Sep 1950.

⁴ W Cdr A. W. Barr, MC, DFC, 250774. Comd 3 Sqn 1942, 2 OTU 1945. Accountant; of Windsor, Vic; b. Wellington, NZ, 10 Dec 1915.



On 6th January 1942 before any heavy frontal assault could be made on the enemy positions around Agedabia, Rommel commenced a withdrawal. Aided by sandstorms, protective minefields and stubborn rear-guard sections, the Axis forces retired in perfect order and, by the 12th, were holding strong positions extending from Maaten Giofer, ten miles south of Agheila, eastwards to Maaten Belcleibat and north to the coast. The Royal Air Force had been able to fly only a restricted number of bomber sorties, and little real damage resulted. Bad weather prevented fighters from operating during four days of this withdrawal, but whenever possible they were dispatched to patrol enemy sectors. While other squadrons were re-arming, No. 3 again took the principal part in offensive operations, meeting with one resounding victory on 8th January and then a series of minor defeats. The Kittyhawks on that day found thirty-five Italian aircraft and eight Me-109's about to strafe units of XIII Corps advancing south-east of Agedabia, and in a series of dog-fights claimed seven aircraft destroyed, and four probably destroyed, for the loss of one Kittyhawk. The next afternoon, while escorting Blenheims to bomb Marsa Brega, a swift dive attack by a lone Me-109 shot down one Kittyhawk and damaged another; on the 11th again in company with Blenheims, the Australians beat off a determined enemy attack but themselves lost three aircraft. Barr returned three days later and reported that after shooting down an Me-109 and a G-50 he went down low to pick up a Kittyhawk pilot who had crash landed, when he himself was shot down. The other missing pilots were Cameron and Flying Officer Jones⁵ who were both captured by the enemy and taken to Tripoli. Twice before Cameron had managed to rejoin the squadron after being shot down, but although he and Jones escaped from Tripoli on 17th January and began to walk eastwards they were eventually betrayed by Arabs on the 22nd, recaptured, and finally imprisoned in Italy. Much later, in September 1943, Jones escaped from a train in northern Italy, made his own way into Switzerland and finally, in July 1944, crossed into France to join the French Forces of the Interior. About the same date, when, after the capitulation of Italy, prisoners of war were being transferred to Germany, Cameron also jumped from a prisoners' train, but was again apprehended after one day in hiding.

The Kittyhawks next operated on the afternoon of 13th January after the Australians had moved forward to Antelat, and though a sweep over Agheila itself provoked no reaction, when nearing home one section which was investigating a crashed aircraft was caught unawares by four Me-109's. Flying Officer Schaeffer's⁶ Kittyhawk was holed and he landed out of petrol near Msus, but was able to repair the damage and fly to Antelat the following day. The 14th and 15th January passed without incident although the sweeps were maintained, and then No. 3 ceased operations for a week, partly because of bad weather, and partly to restore serviceability,

⁵ Sqn Ldr R. S. Jones, 290726; 3 Sqn. Livestock salesman; of Peppermint Grove, WA; b. Henley Beach, SA, 18 Aug 1916.

⁶ Sqn Ldr H. H. Schaeffer, 260835. 3, 77 and 86 Sqns. Company secretary; of Grafton, NSW; b. Grafton, 21 Sep 1916.

while other squadrons which had already rested and re-equipped took over its responsibilities. With the ground situation remaining static until the 21st, nothing of note occurred during the operations of Australians on R.A.F. squadrons, although Caldwell whose hard, eager efficiency had quickly revealed itself, was transferred to command No. 112 Squadron on 13th January.

Many of the original aims of the second Libyan offensive had now been realised, with the enemy driven from Cyrenaica, Tobruk relieved, greater freedom for convoys in the eastern Mediterranean, the immediate threat to Egypt removed, and British prestige heightened in the Middle East. But unless the gains made could be consolidated it was unlikely that these advantages would be enjoyed for long. Unless Agheila, one of the strongest defensive positions in Libya, were taken, a swing of the pendulum of desert warfare could sweep the Eighth Army helplessly back into Egypt, and to take Agheila the British had first to win a race with the enemy for supplies and reinforcements. By mid-January it was clear that there was little prospect of a British attack on Agheila for some weeks, because supply difficulties and the increasing diversion of forces to the Far East made the strengthening of the forward area a slow process. The logistical problem of the enemy, however, had been greatly eased by the arrival in Sicily of the German *Second Air Fleet* under Field Marshal Kesselring. This new force by systematically raiding Malta, made it impossible for naval and air units based there to interfere as effectively as before with Axis supply convoys crossing the central Mediterranean.⁷

The brief lull at Agheila allowed great consolidation of Axis forces and on 21st January Rommel sent out three reconnaissance columns towards Agedabia to test the strength of the Eighth Army. These columns with a spearhead of only thirty-three tanks were nevertheless too strong to be repulsed and XIII Corps fell back on the 22nd to the line Agedabia-El Haseiat. This time it was the British airfields which were waterlogged and Axis aircraft operating from the lighter soil of Tripolitania were unopposed on the first day of the enemy advance. On the 22nd, however, light bombers began to strike at Axis camps, strong-points and lines of communication while Wellingtons attempted to destroy the main enemy petrol dump. Fighters covered the withdrawal of XIII Corps and during a noon sweep No. 3 shot down three and damaged seven of a large formation of dive bombers harassing the 1st Armoured Division. The same afternoon, while No. 250 was escorting bombers to attack motorised traffic on the coast road, Twemlow badly damaged an Me-109 which tried to interfere. All these efforts were unavailing, however, and the German raiding columns, quickly reinforced, occupied Agedabia that evening. Advanced elements threatened Antelat, the foremost R.A.F. fighter base, from which all aircraft were hurriedly evacuated to Msus, the last machine leaving under artillery fire.

⁷ The events of a year previously had practically duplicated themselves, only this time it was the Far East and not Malta which required diversion of men and equipment, and *Luftflotte 2*, not *Fliegerkorps X*, which depressed Malta and thus eased enemy logistic problems.

Throughout the next two days the enemy advanced rapidly, and the fighter squadrons were busy flying offensive sweeps to cover the withdrawal of XIII Corps. On 24th January the enemy halted temporarily on a line running from Beda Fomm through Antelat to Saunnu, but before a counter-attack could be launched Rommel thrust forward again the next day and captured Msus, from which the R.A.F. had again withdrawn to Mechili. There was now a grave danger of losing all western Cyrenaica, and, while ground forces were regrouping, British bombers redoubled their attacks designed to disorganise enemy movement around Agedabia, and fighters combined ground strafing and reconnaissance with their normal sweeps. During 25th and 26th January Australian Kittyhawks flew twenty-one sorties ranging over a wide area to attack any targets of opportunity. On the first day four troop carriers and a petrol tanker were set on fire ten miles north of Agedabia, and on the second six transports and an armoured car were damaged between Saunnu and Msus, and one Me-110 was shot down. Sergeant Leu of No. 112 destroyed one of several Me-109's which attempted to intercept Blenheims bombing the Agedabia-Antelat road on the 25th; and the next day, when this squadron was strafing the Antelat-Msus road, Burney made a particularly determined effort, hitting ten vehicles in eight runs over the target.⁸

Masking his true intention by means of a strong thrust towards Mechili, Rommel, on 27th January, sent fast columns northwards to Benghazi, which was quickly isolated, and fell the following day. Bad weather hampered bombing missions during these two days, but fighters continued their ground strafing; in twenty sorties No. 3 claimed eighteen targets damaged between Msus and Antelat. The Australians were out twice on 29th January covering the retreat of the 4th Indian Division from Tocra to Derna. No opposition was met, because Rommel, sensing that he had caught his opponents off balance, was engaged in a daring, albeit successful, gamble, and was pushing ahead using only lorried infantry with very light armoured support. His air units and most of his tanks had been left at Benina and all supplies immediately available were devoted to these swift spearheads intended to roll the Eighth Army back to Gazala before it could recover poise. The German vanguard reached Tmimi by 10th February, and, having then lost most of its momentum due to increasing severity of air attacks on its supply columns, began to construct a series of strong-points between Tmimi and Bir Temrad, awaiting the arrival of reinforcements. Meanwhile XIII Corps had retired to prepared positions between Gazala and Bir Tengeder, and R.A.F. fighters had again been forced back; the Mechili airfields being abandoned on 3rd February when most squadrons went to El Adem, and No. 3 moved direct to Gambut.

Though the Royal Air Force was virtually unopposed in the air during the first week in February, and although it did limit the German thrust, familiar weaknesses in ground-to-air cooperation reappeared under the

⁸ 112 Sqn Operations Record Book.

stress of retreat. Communications were faulty, it was almost impossible to fix a bomb line and once again lack of identification marks on army vehicles resulted in some opportunities to attack being lost. Between 2nd and 10th February No. 3 flew seventy-seven sorties on sweeps, ground strafing, bomber escort and local defence, only once meeting the enemy, and then at a disadvantage. On 8th February, while waiting over El Adem to rendezvous with Blenheims detailed to attack Derna, four of the Kittyhawks were forced to return to base with engine trouble. The rest of the formation was subject to a surprise dive attack by three Me-109's and one Kittyhawk was shot down and another so badly damaged that it barely reached Gambut. The enemy flew off before they could be engaged and in the confusion five more Kittyhawks lost contact with the bombing formation and returned to base. Thus only Flying Officer Gibbes flew on with No. 112 and the Blenheims to Derna, and a heavy rear-guard action was fought by this inadequate fighter cover against renewed enemy attacks. No. 112 Squadron lost three pilots, but Burney shot down one Messerschmitt and shared in the destruction of another.

With the stabilisation of the position on land, and with each army again trying to win a logistical race so that it could decisively attack the other, air activity began to assume new forms. During the war of movement British fighters and light bombers had concentrated on the abundant tactical targets afforded on crowded roads and hastily-erected leaguers, but these opportunities disappeared as the enemy achieved effective dispersal of his forces. Fighters were thus diverted to defensive activity over the Gazala line, over their own bases and Tobruk, while the light bombers returned to the familiar task of attacking German airfields. The Wellingtons of No. 205 Group concentrated their attention on Benghazi which now replaced Tripoli as the main Axis supply port. The enemy, too, began to employ the Me-109F chiefly as a fighter-bomber, making nuisance raids from a high altitude and using its superior speed to avoid combat. These nuisance raids were responsible for the large number of standing patrols which the R.A.F. were forced to mount at this time, 598 out of 945 sorties flown by fighters based in Egypt and Cyrenaica between 11th and 24th February being devoted to local defence. The enemy also sent heavily-escorted formations of bombers to raid Tobruk in an attempt to delay the consolidation of the Gazala line. For the first time, however, the R.A.F. began to get appreciable help from radio-direction-finding facilities, and an adequate controlled-interception system came into being covering the area between Gazala and Bardia.

The most successful of these early interceptions took place on 14th February, when, at 11.45 a.m., eight Australian Kittyhawks and ten Kittyhawks of No. 112 led by Bartle were scrambled from El Adem to meet an approaching enemy formation. After flying north to Tobruk the Kittyhawks turned west over the perimeter defences and climbed steadily until, over Acroma, No. 3 was flying at 8,000 feet with No. 112 slightly ahead and above, just below the cloud base and an ideal height for Kittyhawks. Bartle sighted a group of ten to twelve Macchi 200's below

and to the left of the Australians and warned No. 3 Squadron which, however, had already seen a formation of enemy bombers with a close-cover escort, flying at less than 2,000 feet. No. 112 intercepted the original group of Italian fighters as it attempted to escape into cloud cover, and with each pilot selecting an individual target, every one of the Macchis was claimed as destroyed. Before No. 3 could engage the bombing force, six Me-109's, which had been lurking in the clouds, dived down, but were seen in time for the Australians to wheel round against this new threat. In ensuing dog-fights four Me-109's were claimed destroyed and another one damaged. Both squadrons of Kittyhawks then attacked the bomber force and its close escort. By the end of an exhilarating fight which extended almost down to ground level, the remnants of the enemy formation had fled. Of the estimated total of 32 enemy aircraft involved in these three clashes, 20 were claimed as destroyed, 2 probably destroyed and 10 damaged. Neither of the Kittyhawk squadrons lost an aircraft in this text-book example of perfect interception, both top- and extra-top cover being eliminated before the bombers were attacked. For No. 3 Squadron the victory was especially gratifying, because it was achieved by pilots most of whom were relative newcomers, as the heavy fighting of the last few months had seen the loss or withdrawal of nearly all the experienced pilots. On both squadrons every Australian pilot had some share in this phenomenal success.⁹

Interceptions did not always result in such victories and only the following day, two Kittyhawks, ordered to intercept bombers approaching the aerodrome, were pounced on by three Me-109's and shot down. Sergeant Reid,¹ one of the few relative veterans, never attained height and was killed instantly, but Pilot Officer Briggs,² although wounded, managed to bale out from 300 feet. Again on 16th February five aircraft from No. 3 were sent to ward off enemy aircraft nearing El Adem. Six Me-109's were chased but they escaped by using their superior speed. During the return, the Kittyhawks were warned of more Messerschmitts trailing them from behind. They turned back, made a head-on attack and

* The claims were:

3 Sqn RAAF	Destroyed	Damaged
402375 Sgt W. H. A. Mailey	2 Me-109	1 Mc-200
408060 Sgt B. M. Thompson	$\frac{1}{2}$ Mc-200	
824 F-O H. G. Pace	$\frac{1}{2}$ Mc-200	
406101 Sgt C. H. White	1 Me-109	2 Ju-87
F-O Giddy	2 Mc-200	1 Mc-200
402137 Sgt F. B. Reid	1 $\frac{1}{2}$ Mc-200	1 Mc-200
270839 F-O L. T. Spence	1 Me-109	1 Me-109
F-O Gray		
	<u>8$\frac{1}{2}$</u>	<u>6</u>

112 Sqn

406171 F-O J. P. Bartle	1 (prob) Mc-200	1 } out of Sqn tally of 11 $\frac{1}{2}$ claimed destroyed; 2 prob- ably destroyed; 4 damaged.
404178 Sgt R. M. Leu	2 Mc-200	
402343 Sgt H. G. Burney	1 Mc-200	

¹ Sgt F. B. Reid, 402137; 3 Sqn. Clerk; of Artarmon, NSW; b. Wellington, NSW, 30 Sep 1915. Killed in action 15 Feb 1942.

² Sqn Ldr T. J. L. Briggs, 270699; 3 Sqn. Audit clerk; of Brisbane; b. Warwick, Qld, 1 Jan 1920.

damaged one Messerschmitt, but Flying Officer Threlkeld³ was shot down and killed. Rain, low clouds and dust storms then hampered operations and the remaining local-defence patrols before 24th February passed uneventfully.

Bomber-escort duties claimed a limited share of R.A.F. effort, as on 15th February when an Axis column moved against Bir Tengeder, the extreme left wing of the Gazala line. Nos. 3 and 73 Squadrons escorted twelve Blenheims which sought out and attacked this enemy force with considerable effect, all the bombs bursting among vehicles, four of which received direct hits. Again on the 23rd No. 3 joined No. 450 in escorting six Bostons attacking enemy transport parked between Tmimi and Martuba. Very few sweeps were attempted, but, on the 21st, Caldwell led No. 112 into battle with seven Me-109's over Gazala, himself destroying one and Carson another.

No. 250 Squadron with its many Australian fighter pilots had been withdrawn to the Canal Zone at the beginning of the month, but Australian interest in the desert campaign quickened with the long-delayed arrival on operations of No. 450 Squadron R.A.A.F. From 11th November to 7th December this unit had acted as an advanced repair depot at Burg el Arab, and had then gone to Abu Sueir to train and equip with Kittyhawk fighters. Deficiencies of equipment delayed this training, but it finally reached Gambut by 16th February 1942, maintaining a detachment at El Adem as from 20th February and participating in several attempted interception patrols. On one of these, shortly after noon on the 22nd, Sergeant Shaw⁴ sighted a Ju-88 reconnaissance aircraft at 20,000 feet and shot it down south-east of Gazala. The next day, while providing medium cover over No. 3 and Boston bombers, No. 450 was attacked by Me-109's. Sergeant Young⁵ destroyed one, but a Kittyhawk was lost and another crashed on return to El Adem.

Throughout General Auchinleck's advance and the subsequent withdrawal to Gazala the fighter squadrons were the dominating factor in air warfare. More and more Australians were at the same time appearing on bomber and naval-cooperation squadrons, mostly as individuals but in isolated instances as complete crews. Fifty men served with No. 270 Wing of light bombers⁶ and fifteen with No. 3 S.A.A.F. Wing during CRUSADER. They gave direct air support for army operations until the fall of Halfaya when four squadrons were withdrawn to India to strengthen it against Japan. Thus, at the same time that No. 451 left the front line, Australian representation in offensive aspects of army-support operations also fell away markedly. The remaining squadrons were relatively weak after their intensive operations during November and December, and,

³ F-O T. L. Threlkeld, 761; 3 Sqn. Rent collector; of Parramatta, NSW; b. Mudgee, NSW, 16 Apr 1918. Killed in action 16 Feb 1942.

⁴ P-O R. Shaw, 402139. 242 and 247 Sqns RAF, 450 Sqn. Display designer; of Bellevue Hill, NSW; b. Tempe, NSW, 28 Jan 1920. Killed in action 29 May 1942.

⁵ P-O I. C. Young, 400402; 450 Sqn. Clerk; of Oakleigh, Vic; b. Oakleigh, 6 Dec 1920. Killed in action 12 Jun 1942.

⁶ 8, 11, 45, 55 and 84 Sqns RAF and the Lorraine (Free French) Sqn.

although employed against Rommel's columns when they drove forward again from Agheila, met with little success. Much effective work had been done by the complete force during the early weeks of the campaign, and Australians, although lacking operational training, were fed directly into squadrons where they quickly adapted themselves to the needs of daylight bombing.

On No. 11 Squadron R.A.F., Squadron Leader Murray⁷ had been appointed to command a flight, while Flight Lieutenant Rechner⁸ had moved up as a deputy flight commander by the end of the year, and the general level of Australian airmanship was high. Similarly, by November at least eighty Australians were operating with the Wellington medium-bomber squadrons of No. 205 Group. Their activities conformed to a fairly regular pattern of attack against the main enemy ports in Libya, together with periodic attachments to Malta for raids against Sicily and southern Italy. On occasion enemy airfields or military bases were also attacked but the dominant theme of the whole period was the "mail run" to Benghazi harbour. Many minor successes were achieved but in view of the smallness of the forces available, these raids were valuable in delaying the building up of enemy strength, chiefly through their effect on Italian workers who insisted on getting well outside this area each night.⁹ No. 201 Naval Cooperation Group was also vitally concerned with the attrition of enemy supplies, and to its heterogeneous collection of reconnaissance and strike aircraft it added, early in 1942, one of the Wellington squadrons (No. 38) to act as an emergency torpedo unit. From Egypt and Malta the aircraft of No. 201 Group kept ceaseless watch for Axis convoys throughout the Eastern Mediterranean. Once located, enemy ships could be attacked either by submarines, by No. 201 Group, or by Blenheims of No. 2 Group, Bomber Command, attached to Malta. In the actual work of destruction Australians at this time played little part, but they were active on Nos. 39, 69 and 230 Squadrons in a scouting role. The formation of an *Article XV* R.A.A.F. squadron for No. 201 Naval Cooperation Group had been authorised during August 1941, but delays in the delivery of aircraft and then the outbreak of war in the Pacific prevented any congregation of Australians on the proposed unit.

⁷ Sqn Ldr E. W. Murray, DFC, AFC, 40738 RAF. 90, 107, 11 and 55 Sqs RAF; comd Western Desert Commn Flight 1943-45. Regular air force offr; of Blackall, Qld; b. Blackall, 20 Jan 1917.

⁸ W Cdr R. M. Rechner, DFC, 407081. 223 and 11 Sqs RAF. Sales manager; of Joslin, SA; b. Edithburgh, SA, 30 Jan 1913.

⁹ See Vice-Adm E. Weichold, "The War in the Mediterranean", Part I. Weichold was the German naval C-in-C, Mediterranean, 1942. After the fall of Tobruk in Jun 1942, that town became the main target for the Wellingtons. A copy of this paper is in the library of the Australian War Memorial, Canberra.

CHAPTER 10

THE STRUGGLE IN THE MEDITERRANEAN: MARCH TO SEPTEMBER 1942

AFTER the withdrawal of the Eighth Army to Gazala in February 1942 there was a lull in the land fighting in Cyrenaica for three months. Patrol activity was maintained and a few local actions fought, but both commanders attempted to augment their supplies and retrain and reinforce their troops for a decisive break-through which would result in the capture either of Tripoli or Cairo. For the first time¹ Hitler, pressed repeatedly by Admiral Raeder and Field Marshal Kesselring, showed real interest in the Mediterranean, and ordered the *Panzer Army Africa* to prepare for an assault which would force the British back over the Egyptian frontier by the end of June. A special task force led by Generals Ramcke and Student was then to attack and capture Malta during July, so that free from any restriction of supply, the Italo-German forces under General Rommel could attack once more and reach the Nile Delta.² British strategy also depended vitally on Malta, for heavy submarine and air attacks against enemy supply convoys were required if the Eighth Army was ever to build up a superiority of supplies, especially in tanks,³ which would allow the British to attack with confidence. This air-sea offensive from Malta, however, presupposed adequate supplies for the island itself, supplies which could only be brought in by the British navy with strong air support over the whole convoy route; while this air support could only be provided by the R.A.F. after the Eighth Army had advanced to capture airfields in the Jebel Achdar. Malta, like the Gordian Knot, augured control of the Middle East and Asia to whichever side could find a solution to the problems which it posed. While the Axis prepared to emulate Alexander and cut the knot by the capture of Malta, the British, despite all setbacks, had patiently to unravel each thread of the complicated and inter-related supply problems.

Within the framework of this strategy the Eighth Army concentrated on building a defensive line from Gazala to Bir Hacheim supported by strong-points at Acroma, El Adem and Bir el Gubi, with the whole system depending on the fortress of Tobruk. Both Army and R.A.F. then concentrated on preparing for the next battle, but not only the delays of the long Cape reinforcement route, but also the diversion of men and machines to the Far East impeded rapid progress. Some 300 fighters and 140 light bombers were sent to the Indian Ocean area early in 1942 leaving

¹ Until 1942 Hitler showed little interest in or appreciation of Mediterranean strategy. After Wavell's break-through in 1940-41 he had sent out the *Africa Corps*, and during 1941 he provided some U-boats to check the successes of the British navy—but he saw these as palliative measures only.

² These decisions were taken during German Staff talks in Mar and in joint discussions with Mussolini at Berghof at the end of Apr. *Fuehrer Conferences on Naval Affairs 1942*, pp. 34-37.

³ Auchinleck required a superiority of 50 per cent in tank numbers to offset the superior quality of German armoured vehicles and guns.

Middle East Command markedly under strength. During April a further 30 Hurricanes, 20 Blenheims and 20 Beauforts had to be released to oppose a possible Japanese attack on Ceylon. Nevertheless the reduced force was trained to a high pitch and remoulded in the light of practical difficulties encountered during the second Cyrenaican campaign. Fighters were gathered into a new operational group (No. 211) and at the same time were organised for administrative purposes into wings of four squadrons.⁴ Each wing could be located on a single airfield and these four-squadron bases simplified arrangements for offence, defence and training. At the same time problems of direct support for ground troops and the ever-recurring difficulty of recognition of friendly units from the air⁵ were partly solved by an increase in positive liaison facilities between army and air force headquarters, and by the decision to arm as many squadrons as possible with fighter-bombers which could intervene in confused ground battles and be certain of attacking only enemy forces. The small light-bomber forces were also regrouped in wings each of two squadrons and stationed at Bir el Baheira only twenty miles from Gambut, where the fighters were concentrated. This proximity allowed joint tactics to be evolved. Additional reasons for the concentration of the fighters at Gambut, rather than the more forward airfields at El Adem and Gazala, were the prevalent dust storms and the increasing frequency of enemy attack in those areas. Communication problems were easier in the Gambut area, the existing early-warning organisation was adequate, and fighters could still operate over the front lines.

For the first three weeks after the stabilisation of the front at Gazala the scale of R.A.F. fighter and light-bomber activity fell away noticeably. Between 25th February and 10th March a total of 1,144 fighter sorties were made but only sixty-nine of these were offensive in character, the remainder being flown on local-defence and shipping-protection duties. In mid-March there was a temporary return to full-scale operations while a convoy was moving from Alexandria to Malta, but thereafter defensive activity again predominated. The opportunity was also taken during this lull to withdraw squadrons for rest and sometimes re-equipment. Some units, like No. 3, did not leave the desert, but were not called on for operations for approximately one month; others retired to the Delta for periods up to two months, their places being taken by squadrons previously maintaining static-defence duties, who also benefited from a more offensive location. The light bombers were similarly limited in their operations but the Wellington bombers based in Egypt attacked Benghazi on sixty-eight of the ninety-one nights between 25th February and 19th May. This attack on the enemy's most convenient supply port was especially necessary since concurrent German attacks on Malta increased in intensity

⁴ 233 Wing: 2 and 4 Sqns SAAF, 94 and 260 Sqns RAF.
²³⁹ Wing: 3 and 450 Sqns RAAF, 112 and 250 Sqns RAF.
²⁴³ Wing: 33, 73, 80 and 274 Sqns RAF.

⁵ During CRUSADER Tedder had emphasised the point that "the solution depends on better control of the land forces, which depends on better communications, plus training and better recognition methods".

and led to the withdrawal early in March of the Wellingtons and Blenheims which had previously attacked Italian ports and shipping. Naval surface craft also had to leave Malta with the inevitable result that German supply convoys reached Africa in a mounting stream.⁶ The Wellington attacks forced most of this traffic to use the distant port of Tripoli and only 5,000 tons were unloaded in Benghazi during February, though the figure rose to 12,000 tons in March. The bomber force alone, however, had neither the range nor the numbers to interfere seriously with the enemy supplies.

The main Australian interest throughout the spring and summer of 1942 centred on the operations of No. 239 Wing which, although projected much earlier, was not officially established at Gambut until 26th April. Not only were both the R.A.A.F. fighter squadrons included in this formation, but the other two squadrons, Nos. 112 and 250, included the majority of Australian fighter pilots serving in R.A.F. squadrons. Wing Commander Mayers, an outstanding pilot during the Battle of Britain who had since shown instinctive adaptation to conditions in the Middle East, was appointed to command the whole wing. The Kittyhawks were still the best aircraft available and great satisfaction was felt when this wing was chosen as the first to convert to a fighter-bomber role which naturally would keep them in the forefront of battle. Previous limited success had been achieved with Hurricanes, but on 10th March Squadron Leader Caldwell was asked to make a test drop from a Kittyhawk, the primary object being to discover whether or not on release the bomb would carry away the aircraft's propellor. To minimise the consequences of possible disaster, the test was conducted over the sea, but all went well and Caldwell immediately repeated the experiment, this time using a live bomb. His restless spirit saw great potentiality and great personal satisfaction in this new weapon and at dusk on the following day he bombed an enemy target at Martuba. By the time the Kitty-bomber⁷ was officially introduced into operations Caldwell himself had left the Western Desert, and the first sortie of six aircraft against Tmimi, on 16th May, was led by Flight Lieutenant Bartle, a flight commander of No. 112.

It will readily be seen that the emergence of the fighter-bomber as a weapon of choice for the spearhead of No. 211 Group was dictated by the fact that although close-support aircraft had given valuable assistance during CRUSADER, the system then devised was by no means perfect and continual efforts were made to improve it. It was generally agreed that more satisfactory results had been achieved against motor vehicles than against tanks. Accordingly a policy decision was taken to concentrate

⁶ "... The supply situation now began to show an improvement so that during January and February a clear 60,000 tons of shipping moved to Africa; with no losses in January and only 5,000 tons lost in February. In March the tonnage rose to 70,000 tons of which 1,000 tons were lost and 15,800 tons damaged, and finally, in April, it rose to 145,000 tons with a loss of only 3,500 tons Supplies in April were for the first time, and the last, more than sufficient to meet the demands" Report by Vice-Adm E. Weichold, German naval C-in-C Mediterranean 1942.

⁷ Wartime hybrid names for aircraft specially adapted for particular purposes were seldom beautiful but they had the advantage of simplicity and individuality. They are used in this text to avoid as here constant distinction between Kittyhawk fighters and Kittyhawk fighter-bombers.

effort against the transport columns on which tanks depended for their essential supplies. To increase the blast effect and to avoid cratering, the fastest possible fusing and nose-extension rods were given to bombs. Attack on transport columns in a mobile battle, however, again brought up the question of distinguishing friend from foe. The liaison officer with XXX Corps during CRUSADER pointed out that no sign less than 15 feet in length was visible at altitudes over 6,000 feet. Nevertheless a white St Andrew's cross on a black background was first suggested and then on 12th May it was decided to paint the R.A.F. roundel on all air and army vehicles as a convenient symbol, especially for fighter pilots; unfortunately the process was far from complete before the next campaign began. The vexed allied question of a bomb line was also partially solved by the introduction of hourly signals through air support controls of the forecast military situation for two hours ahead.

One of the major problems was undoubtedly the time lapse between the origin and fulfilment of requests for air support which, during CRUSADER, had averaged three hours due to delays in individual formations becoming airborne and for fighters to rendezvous with bombers. Exercises during April between fighters and bombers only reduced this time by thirty-five minutes, which was a meagre improvement. Targets in desert fighting quickly grew stale, and although this time lag was palliated by a reorganisation of air support control procedure to incorporate supplementary briefings and the stationing of listening posts for tactical reconnaissance aircraft with the forward tentacles, the position was still unsatisfactory. The time was doubly ripe therefore for the emergence of the fighter-bomber, which, at low level, had less difficulty in identifying its target and which did not require carefully contrived fighter escort. It was emphasised, however, that the primary role of fighters was air fighting, but in practice each squadron of No. 239 Wing was able to sustain both functions according to the tactical needs at any time.

During the first four weeks of the stabilisation period No. 3 (now commanded by Squadron Leader R. H. M. Gibbes) and No. 450 flew 452 sorties⁸ of which 223 were devoted to local defence, 103 to offensive sweeps, 87 to bomber support, 30 to convoy protection and 9 to reconnaissance escort. The offensive sweeps produced no reaction from the enemy and only two engagements resulted from local-defence flights, which were now conducted not in full squadron strength but by small sections drawn from one or two squadrons of the wing. Both these battles resulted from German attempts to dive-bomb Tobruk, and although on 27th February 6 Kittyhawks of No. 3 Squadron with 6 of No. 450 had rather the worse of a battle with 5 Me-109's which were protecting 14 Ju-87's, a much more successful interception took place on 8th March.

On this occasion Flying Officer Barr led a similar force against 12 Ju-87's escorted by 10 Macchi 202's and 2 Me-109's. Ordering the pilots of No. 450 to act as top cover he dived with his own section in a surprise attack on the Italian escort, 6 of which were destroyed, while 3 of the

⁸ The total ME fighter force flew 2,855 sorties.

Ju-87's which had dived to ground level and fled were also shot down without loss to the Australians.

The only other chance of combat during this month came while escorting Boston bombers on five of the six daylight raids against Martuba, mounted between 14th and 23rd March. Enemy fighters frequently followed these formations for long periods awaiting an opportunity to attack, but unless they did close in, they were ignored by the escort fighters whose primary task was to remain protecting the bombers. Running clashes on 14th March, however, gave the Australian squadrons a claim of one enemy destroyed, two probably destroyed and a fourth damaged. The later escorts were performed by No. 450, as No. 3 received instructions on 18th March to fit long-range tanks to give protection to a convoy bound for Malta. Sixteen flights were made on 21st March and another twelve two days later, but all were without incident.

On completion of this convoy-escort duty No. 3 was withdrawn for rest and retraining, reappearing in the front line on 29th April. During the intervening five weeks No. 450 continued a steady pressure of operations with the emphasis again on local-defence flights. Fighters received increasing help from an early-warning radar system consisting of a permanent-type installation at Tobruk with mobile stations at Gambut and Gazala.⁹ These radar sets had an effective range of sixty miles and thus could discern enemy raiding parties forming up over Martuba. A supplementary chain of ground observation posts and low-powered radar sets was set up in forward areas but the information supplied was limited to the course, height and speed of enemy aircraft at the time of observation. Squadron Leader Steege and his pilots were disappointed, however, for although No. 450 flew 204 sorties on local-defence duties, not once was the enemy brought to battle. Germans were content to mount fleeting raids and withdrew when the defences were too strong. On 5th April, however, a peculiar and tragic incident occurred, when at 3.20 p.m. six Kittyhawks were ordered to patrol over Gambut. These aircraft were still climbing up to patrol height when they were warned of the presence of enemy aircraft high above them. Almost simultaneously bombs began to fall on the landing ground and a moment later a Kittyhawk fell out of control from about 6,000 feet and dived vertically into the ground. A few minutes later another Kittyhawk did the same thing. The remaining Australian pilots chased away the bombers and then reported that the two fallen aircraft had neither been engaged by the enemy nor hit by anti-aircraft fire. These accidents seemed inexplicable except on the grounds of inexperience. Neither pilot had more than eight hours experience in flying Kittyhawks and each was on his first operational flight. This grim reminder added point to the current training drive within squadrons, all of which had at this time a large proportion of junior pilots as replacements for losses during the previous campaign, and to the need for

⁹ The problem here was vastly different from that in the UK. The static organisation of Fighter Command permitted the creation of elaborate radar installations, but the essential mobile character of the war in the desert imposed limitations on the type of equipment which could be used or would justify its installation.

men like Caldwell who had completed their tour of operations. Despite this mishap No. 450, which had been in the line for less than two months, had settled down remarkably well and had earned the full confidence of the air officer commanding, Western Desert, Air Vice-Marshal Coningham.¹

No. 450 also flew forty-nine sorties in support of the small force of day bombers, which were employed primarily against enemy airfields. After 6th April, however, when German ground forces began to move forward and consolidate their positions around Sidi Brehisc and Segnali, the Bostons were ordered to attack troop columns in this sector.² These escort operations led to three minor clashes with shadowing enemy fighters during which aircraft of both sides were damaged, but there was no attempt to force a full-scale battle. Australian pilots reported the same cautious enemy tactics on all the ninety-three offensive sweeps flown by No. 450, because no fighting resulted and the Australians contented themselves with studying the German forward troop dispositions. On 29th April, when No. 3 had returned to Gambut after a training period at Sidi Haneish, No. 450 was in turn given a fortnight's rest. By this time No. 239 Wing was fully established, and was keen to press an offensive, but actual events in the air did not change greatly during the absence of No. 450. Only once were enemy aircraft engaged during the sixty-three interception patrols sent out by No. 3, and even then the Messerschmitts dived quickly away after one had received damage. Sweeps provoked no organised opposition, although during the evening of 7th May six Kittyhawks discovered two Messerschmitts near Gazala, and Gibbes destroyed one of these. Two days later the same pilot damaged an Me-110 when the entire Australian squadron was sent to cover the withdrawal of Bostons which had attacked enemy shipping at Benghazi.

The cautious German air policy in Africa during the early months of 1942 was dictated by the efforts which Kesselring was making at the same time to eliminate British military power at Malta. The German *Second Air Fleet* had been transferred from the central Russian front to Sicily in December 1941, so that German strength in the Mediterranean was almost doubled. Once the Cyrenaican battle became static, the German intention was to dispose finally of Malta and thus to secure Axis sea communications in the Mediterranean theatre as a whole and to North Africa in particular.

Since April 1941 when the available German air strength had been split between tactical army-support units in Cyrenaica and long-range bombers in Crete, the Italians had failed utterly to subdue Malta as a key British base. Not only had Wellingtons caused considerable damage at the

¹ He sent a signal during Mar " . . . the standard of fighting and bomber protection by your squadron has been quite exceptional. We are all impressed by the operational efficiency and keenness displayed"

² Although the fighter-bomber was at this time emerging as the prime air-support weapon for use in mobile campaigns, they could not deliver heavy attacks so that whenever the weight of bombs dropped was a major consideration, the escorted bomber was still an essential. They could safely and effectively be used behind enemy lines when the position was static, because the Boston was a much faster aircraft than either the Blenheim or Maryland.

loading and unloading ports of Naples, Palermo and Tripoli, but reconnaissance planes had also observed and reported nearly all Italian convoys in the central Mediterranean. These convoys had then been attacked by naval surface or under-water craft or by aircraft actually based on Malta. Between May and December 1941 no less than 426,000 tons of Italian shipping had been sunk and an even larger total damaged. The drastic effect of these British successes³ had already impelled the German High Command to dispatch U-boats to the Mediterranean, and with the loss of the aircraft carrier *Ark Royal* and the battleship *Barham*, the immobilising of the battleships *Valiant* and *Queen Elizabeth*⁴ and the diversion of other ships to the Indian Ocean, the British navy was no longer able to play its former part in this commerce warfare.

For his part Kesselring began to strike early in January 1942 with an average of fewer than fifty bombing sorties against Malta. This relatively modest effort was sufficient, however, to force the air force there on to the defensive. One by one bomber squadrons were withdrawn from Malta, partly to avoid destruction on the ground and partly to make way for fighter aircraft. The few cramped airfields on Malta could not hold many aircraft, nor would the changed naval situation permit the free entry of fuel, stores, bombs and ground staffs to satisfy much more than requirements of defence. One Australian pilot, evacuated by ship at the end of January after his Blenheim had been destroyed during an air raid, wrote: "My last memory of Malta was seeing, on the day I left, six parachutes floating down over the island."

Scouting and torpedo aircraft remained after the light bombers withdrew but their value lessened as the navy also was forced progressively to withdraw its destroyers and submarines as port facilities at Malta declined under air attacks. The Wellington crews worked hard to redress the situation and during the night of 2nd-3rd March made an outstanding attack on a large convoy assembling in the harbour of Palermo. Six of the ten Wellingtons engaged operated twice that night and three medium-sized merchant ships were sunk. Sergeant Fuller⁵ flew in the first wave and, despite a smoke screen obscuring the harbour, made a fine approach and set one ship on fire with his bombs. Fuller then returned to Malta for his aircraft to be refuelled and re-armed, made a second attack at Palermo and remained circling the harbour for some time to hamper the work of fire fighting parties. This, however, was one of the last efforts of the Wellingtons, because 9 of the available 15 aircraft were destroyed on the ground and 2 more crashed during take off. The remaining aircraft and crews

³ Vice-Adm Weichold stated in "The War in the Mediterranean": "In November the total tonnage used for African convoys fell to 37,000 tons, of these 26,000 tons were sunk and 2,100 tons were damaged. This was 77 per cent, the highest percentage of tonnage lost, and also the remaining 8,400 tons was the lowest monthly delivery which had been put into Libyan harbours. For the sake of completeness let me quote the figures for December. The lowest total amount of tonnage used by Italy was 36,000 tons. Of this 13,000 tons were sunk and 4,800 tons were damaged . . . a loss of 49 per cent. Only 18,000 tons remained seaworthy—the second lowest monthly total for the Libyan convoys. Under such conditions the African war was bound to die a natural death."

⁴ Both heavily damaged by Italian two-man torpedo attack at Alexandria on 18 Dec.

⁵ F-O L. G. Fuller, DFM, 402052; 37 Sqn RAF. Car salesman; of Bondi, NSW; b. Cootamundra, NSW, 9 Aug 1918. Killed in aircraft accident 18 Mar 1944.

withdrew from Malta before the end of March, and for the time being it was impossible to base bombers there on a permanent basis. Occasionally Wellingtons flew to Malta, performed a specific task and withdrew to Egypt, but even aircraft in transit from the United Kingdom to Egypt were not normally permitted to remain overnight at Malta. Ferry crews landed at Malta, handed over their aircraft to spare crews and themselves waited for incoming Wellingtons on subsequent nights.

The primary German objective—to prevent ships and aircraft based at Malta from interfering with the supply route to Africa—had thus been quickly realised. Kesseling now strove by a redoubled bombing offensive to weaken even the defensive power of the island, in preparation for an invasion in mid-summer. The failure of British attempts to replenish Malta⁶ during January and February placed the garrison in a state of siege by 21st March when the major German air assault began. On this day over 300 bomber sorties were made and on eight occasions during April over 200 sorties were made in a day, culminating on 21st April in an attack by 325 bombers. This assault was on the heaviest scale yet brought to bear by the German Air Force against any single objective for so long a period.⁷ On 7th March, however, at the apparent nadir of its military effectiveness, Malta received a measure of hope in the arrival of fifteen Spitfires flown in from the deck of the aircraft carrier *Eagle*. Sixteen more arrived late in March and forty-seven in April, and although many of these were damaged in heavy air raids immediately they arrived, more were successfully flown in during the following month. For the first time the defenders had a fighter which outclassed the Me-109F, and from March onwards in the very bitter air fighting over Malta, the German Air Force lost far more heavily than in previous months.

Ten Australian fighter pilots arrived at Malta with the first two contingents of Spitfires, and they were almost immediately in action, joining a handful already there with Hurricane units. Sergeant Brennan⁸ of No. 249 Squadron on 17th March was credited with shooting down an Me-109 and nine days later he damaged two Ju-88's of the large enemy force attacking Valetta. Two Australians were killed during the month, however, and another, Pilot Officer Lester,⁹ who had shown great promise as a fighter pilot, was shot down into the sea, severely wounded, on the 18th. These men, who had calmly made the first flight of Spitfires from the deck of an aircraft carrier, found conditions in Malta vastly different from those lately enjoyed in the United Kingdom. Ta Kali and Luqa airfields were pitted with bomb craters, no sooner filled than others appeared under the relentless bombing of the Germans who well knew that

⁶ Of 7 ships sailed from Alexandria 5 were sunk before reaching Malta and the remaining 2 sunk in harbour before they could unload.

⁷ Between 21 Jan and 24 Feb the enemy had flown nearly 2,000 sorties mainly against docks and airfields; from 25 Feb to 31 Mar 3,110 sorties were recorded; during Apr the total was 5,715 of which 1,638 were made between 22-28 Apr.

⁸ F-Lt V. P. Brennan, DFC, DFM, 404692. 64 and 249 Sqns RAF, 452 and 79 Sqns. Law student; of Hendra, Qld; b. Warwick, Qld, 6 Mar 1920. Killed in aircraft accident 13 Jun 1943.

⁹ F-Lt H. C. Lester, 400147. 605 and 185 Sqns RAF. Clerk; of Melbourne; b. Adelaide, 29 Oct 1915.

no emergency fields existed. Food supplies, fuel, even ammunition for the anti-aircraft guns was rigorously rationed. Until dispersal and blast bays had been built for the Spitfires, many were destroyed on the ground, and often the Australians found that their moments of greatest danger from the enemy were while landing or taking off. Hungry and forced to adopt almost a troglodyte existence at the height of these raids, pilots, ground crews and the Maltese themselves gave all their time to the preservation of these two airfields on which symbolically and materially the whole fate of the island seemed to depend. There were no mechanical devices to aid them, but patiently and laboriously repairs were carried out and aircraft shelters constructed.

This ever-present emergency indeed evoked a purposeful daring among the pilots which may well have been the most important factor in the battle. On 1st April Sergeant Boyd¹ of No. 185 Squadron, during his second flight that day, claimed the destruction of a Ju-88 and in later sorties during the month he probably destroyed 2 more and damaged a further 6 enemy aircraft. Three of these battles were fought on the 8th when Boyd was airborne four times and showed to a high degree the courage and keenness to attack regardless of odds, which animated all his fellows. Two days before, Pilot Officer Bisley,² flying one of the four aircraft of No. 126 Squadron, was suddenly confronted with a large mixed force of Ju-87 and Ju-88 bombers, escorted by Messerschmitt fighters. Bisley dived through the protective screen and approached so determinedly that the bomber formation turned tail. He pursued them over the sea towards Sicily and shot down a Stuka and damaged a Ju-88 before the surprised German fighters could bring him to bay. In a heroic but unequal contest with eight enemy machines he was badly wounded but fought his way back and made a crash-landing at Ta Kali.

Brennan and Sergeant Tweedale³ (No. 126) had their busiest period with the arrival of reinforcement squadrons on 20th April, for this coincided with a German attempt to deliver a knock-out blow. On the 20th, while patrolling west of Gozo, Brennan shot down an Me-109, and while returning to base he set on fire both engines of a Ju-88 which was attacking Ta Kali. Next day, when the defenders' rations were again cut and airmen were encouraged to use rifle fire to defend their airfields from attack by low-flying aircraft, Brennan scored another probable success against a Ju-88 during an evening raid. A volunteer party of 300 troops was kept ceaselessly at work during the next few days maintaining a serviceable runway for No. 249 Squadron and throughout the heavy bombardment of the next few days the Spitfires rose to challenge each enemy raid. Tweedale was credited with the destruction of three Ju-88's and one Ju-87 within four days and on the 25th Brennan first blew away

¹ P-O J. L. Boyd, DFM, 404548. 135, 242 and 185 Sqns RAF. Jackaroo; of Brynestown, Qld; b. Brynestown, 20 May 1919. Killed in action 14 May 1942.

² F-Lt J. H. E. Bisley, DFC, 402720. 126 Sqn RAF, 452 Sqn. Bank clerk; of Kelso, NSW; b. Molong, NSW, 7 May 1920.

³ P-O G. R. Tweedale, DFM, 404269. 43, 126 and 185 Sqns RAF. Stockman; of Clayfield, Qld; b. Brisbane, 18 Apr 1918. Killed in action 9 May 1942.

the complete wing of an Me-109 with his cannon fire and then attacked a Ju-88 which crashed in an uncontrolled dive at Ta Kali.

The climax of this battle came early in May. In yet another attempt to regain air supremacy, sixty-four Spitfires were to fly in on 9th May to be followed a day later by the arrival of *Welshman*, an extremely fast mine-layer, with supplies which the garrison now urgently required. Profiting from experience all arms were to be used to protect the incoming aircraft until they had re-armed and refuelled to meet the attack, which the enemy was expected to make against their bases as soon as they landed. Thus, from dawn on 8th May, all ammunition and target restrictions for anti-aircraft gunners were lifted, and the remnants of the existing Spitfire forces flew determined that at the very least a powerful Malta-based fighter screen would rise phoenix-like out of the ashes of the old. Tweedale began well on 7th May by shooting down an Me-109. On the following day he claimed as victims another Me-109 and a Ju-88, but there his career ended for he himself failed to return from a sortie on 9th May. The indefatigable Boyd outlived him by five days only, but, in his last glorious week of combat, he flew ten times and certainly destroyed one Ju-88, probably destroyed another and damaged a third. Sergeant Goldsmith⁴ of No. 126 and Brennan each shot down three enemy aircraft during the first fortnight in May, and by their and other pilots' efforts the reinforcement Spitfires landed, were fully serviced within ten minutes and had joined in the epic battle of 9th May. However, Flight Lieutenant Sly,⁵ who had been a prominent member of No. 452 Squadron R.A.A.F., was attacked and mortally wounded while landing an incoming Spitfire. *Welshman* arrived safely on 10th May and so in terms of air defence and essential supplies Malta had earned a breathing space.

On the larger strategical plane the German assault on Malta seemed successful because Axis convoys to Africa sailed without hindrance.⁶ Nevertheless the stubborn resistance of the island was not without effect on the German Air Force because from 300 to 400 aircraft were kept heavily and actively engaged during the greater part of the period between January and May 1942. There had been no possibility of conserving German air resources, as losses during April and early May amounted to over 300 aircraft. The heavy tonnage of bombs and aircraft fuel consumed in the attempt to subdue Malta was directly to the detriment of supplies in North Africa. In the middle of May therefore, with one eye uneasily scanning preparations for a summer campaign in Russia and the other on Rommel's needs, the German air chiefs decided to abandon the all-out attack. As in May 1941 an uncompleted task was again handed over to the Italian Air Force, in the hope that this time it would have the means and the stomach to keep Malta subjugated until the

⁴ Sqn Ldr A. P. Goldsmith, DFC, DFM, 402500. 234, 242 and 126 Sqn RAF, 452 Sqn. Public servant; of Artarmon, NSW; b. Waverley, NSW, 25 Apr 1921.

⁵ F-Lt R. H. C. Sly, 402260. 41 Sqn RAF, 457 and 452 Sqn, AHQ Malta. Cadet draftsman; of Dulwich Hill, NSW; b. Sydney, 1 Oct 1921. Died of wounds 9 May 1942.

⁶ From 30,000 tons in Jan the convoy figures rose rapidly to 70,000 tons in Mar, 145,000 tons in Apr and 170,000 tons in May. Losses were a mere 9 per cent.

projected invasion should finally eliminate it as a military threat. In miniature this had been a second Battle of Britain, and once again a small, hard-pressed but resolute force of fighters had preserved the base on which largely depended the military strategy of its entire theatre of war.

The German failure to subdue Malta was not permitted to interfere with the pre-arranged plan for an Italo-German offensive in Cyrenaica. Forty dive bombers, 30 single-engined fighters and 15 twin-engined fighters transferred during May from Sicily to Africa.⁷ This gave Rommel a total German force of 260 aircraft, some 70 more than he had relied on during the previous campaign. In particular his force of day fighters had risen greatly from 50 to 120. Similar increases took place in Italian air dispositions in Africa, the combined Axis forces amounting to 600 close-support aircraft. This change in emphasis was soon reflected in Cyrenaica, where the Me-109F, then the best fighter in that sector, was used in an increasingly offensive role. Small groups of these aircraft were used to cause constant alerts in forward British areas and engaged freely in the "jumping" tactics of surprise attack.

Both the Australian squadrons had unsatisfactory encounters with these sneak raiders between 13th and 19th May. On 13th May twelve Kittyhawks of No. 3 were on interception patrol near Gazala when two Me-109's dived out of the sun, shot down two aircraft and climbed away. Again on the evening of 16th May twelve of No. 3, with a top cover of nine of No. 450, were surprised by three Me-109's south-east of Gazala. One pilot of No. 450 was forced to bale out and his Kittyhawk then collided with another which also crashed; one of No. 3 had to make a forced landing west of El Adem. A third engagement took place early on 19th May when nine aircraft of No. 450 were sent to patrol near Gazala. Two Kittyhawks returned early and the others split into sections of three and four. The smaller section was attacked without warning by two Me-109's, and one Kittyhawk, damaged in wings and rudder, withdrew. The second Kittyhawk turned to engage an enemy fighter, fell into a spin, recovered in cloud and climbed back, but could not find the action and also returned to base. This left only Sergeant Young who climbed after the attackers to 20,000 feet and then, as both turned against him, spiral-dived to 4,000 feet to take advantage of cloud cover. The Messerschmitts were still in contact, however, and, as he emerged, cannon fire from one of them stopped his engine. Young weaved violently and made a hurried forced-landing as the second enemy also dived to attack; his

⁷ At the same time many aircraft were also withdrawn to reinforce units in Russia and the actual strength of the GAF in southern Europe became:

	Greece & Crete	Sicily	Total
Long-range bombers	130	55	185
Bomber reconnaissance	20	20	40
Dive bombers	—	—	—
SE fighters	5	30	35
TE fighters	20	10	30
Coastal	35	—	35
	<u>210</u>	<u>115</u>	<u>325</u>

Kittyhawk was destroyed on the ground by further cannon fire, but Young made his way safely to Gambut.

This series of minor defeats was offset by a very successful experiment on 12th May when Mayers led four Beaufighters (No. 252 Squadron) and ten Kittyhawks (No. 250), the latter equipped with long-range tanks, in an attempt to intercept German transport aircraft⁸ plying between Crete and Derna. Flight Lieutenant Waddy led the top cover, and after nearly two hours search he reported 16 Ju-52 transports north of Derna escorted by only 3 Me-110's. The British formation attacked from head-on and 6 Ju-52's were shot down in flames into the sea. Individual attacks continued for twenty minutes against the remaining German aircraft of which only three subsequently escaped. Waddy accounted for 2 Ju-52's and 2 Me-110's while Mayers and Sergeant Buckland⁹ each destroyed one of the transport aircraft.

By 19th May it was clear that an enemy offensive was about to begin.¹ Strong attacks were made almost daily against R.A.F. airfields and enemy fighter sweeps attempted to prevent British reconnaissance aircraft from penetrating the German lines. The arrival of strong enemy air reinforcements at Barce, Derna and Martuba was reported by patrols and these airfields were bombed not only by Bostons but by Kittyhawk fighter-bombers. The R.A.F. fighters also during the next week dropped their primarily defensive role and sought to cripple the German Air Force. The Australian squadrons made only 44 local-defence flights compared with 98 during the previous week, and their bomber-escort sorties rose sharply from 11 to 76. Three combats were fought during this week, on 22nd, 23rd and 26th May during which No. 3 lost one Kittyhawk but Gibbes, Barr and Flight Lieutenant Rose² each claimed an Me-109. No. 450 lost two aircraft but also scored two victories, while during the fight over Martuba on the 22nd Waddy also destroyed an Me-109. Gibbes himself was shot down on 26th May while opposing an early-morning raid against El Adem. He had broken through the German fighter escort and was attacking a Ju-88 when his engine was set on fire by the enemy rear gunner. As he abandoned his Kittyhawk at 4,000 feet he was struck by the tail-plane and the aerial wire became entangled with his parachute. This caused a heavy landing and he broke an ankle, which prevented him from flying for some months. No. 3 was fortunately relatively well provided with experienced leaders and during his enforced idleness Barr took command of the squadron. On the same day modified Kittyhawks were available to No. 3, and at dusk six Kittyhawks attacked Tmimi airfield, three bombs falling in the centre of the main aircraft dispersal area, and two

⁸ During the lull at Gazala the main task of the well-organised German air transport to N Africa was the carrying of fuel, ammunition and equipment in fairly large quantities for the close-support air units.

⁹ P-O G. G. Buckland, 400642; 250 Sqn RAF. Clerk; of Ballarat, Vic; b. Ballarat, 1 Jun 1921. Killed in action 30 May 1942.

¹ Kesselring as Commander-in-Chief South moved his headquarters from Taormina (Sicily) to N Africa to press this offensive.

² W Cdr I. F. D'A. Rose, AFC, 269. 450 Sqn, 250 Sqn RAF, 459 Sqn, comd 6 OBU 1945. Regular air force offr; of Sydney; b. Randwick, NSW, 7 Jan 1920.

on the edge—an encouraging achievement for an initial effort. No. 250 Squadron was also sent out to harass forward enemy ground troops and Pilot Officer Cable with Sergeant Hannaford³ set several German vehicles on fire west of Maraua. No. 239 Wing had thus quickly settled down and the pilots were in good heart for the impending main battle.

When, on 27th May, Rommel's *Panzer Army Africa*⁴ began to move forward, it forestalled a British offensive already ordered to begin early in June,⁵ and for which Auchinleck, despite constant transfers to the Indian Ocean area, had tried to husband his forces. Early in May, however, he had realised that Rommel had won the race for supplies and would probably attack first. Auchinleck therefore determined to stand fast on the Gazala-Bir Hacheim line, and to launch a counter-offensive as soon as the enemy was halted. Two courses lay open to Rommel: he could attack frontally with the object of forcing a direct path through the minefields, or he could move around the southern end of the Gazala line and endeavour to take it in the rear. In the event a compromise was adopted when, at dawn on 27th May, the *Trieste Division* attempted to breach the defensive minefield near Sidi Muftah, while the *Africa Corps* and *90th Light Division* swept round the southern bastion of Bir Hacheim, captured the headquarters of the 7th Armoured Division and deployed south of Knightsbridge and El Adem. Striking as this initial advance seemed to be, neither the frontal attack nor the outflanking drive to reach the coast east of Gazala succeeded, and the *Africa Corps* found itself halted at the end of a long and tenuous line of communications. The R.A.F. was quick to seize its opportunity and for four days all fighters and light bombers were thrown into the battle, while medium bombers switched from attacks on supply ports to attacks on enemy airfields. Light-bomber sorties against enemy columns totalled 106 and the three fighter-bomber squadrons were used constantly, recording 223 flights. The value of these sorties lay not so much in the weight of bombs dropped, as in the type of attack—made at low level and followed by strafing—and their frequency.

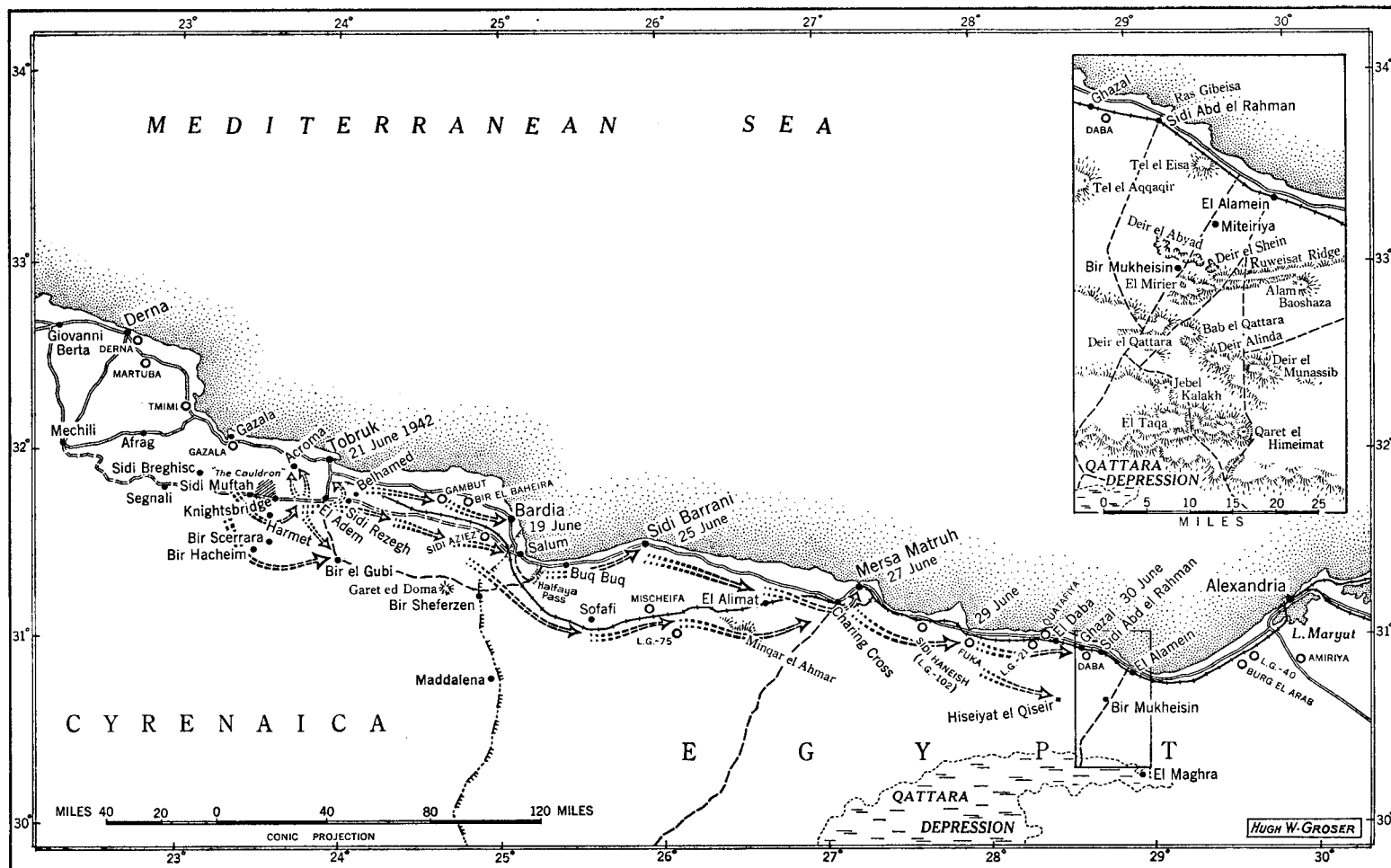
On 27th May No. 3 Squadron's Kittyhawks dropped twenty-two 250-lb general-purpose bombs, damaging several tanks and a gun limber and

³ F-Lt H. R. Hannaford, DFC, 407427. 250 Sqn RAF, 450 Sqn. Salesman; of New Mile End, SA; b. Gumeracha, SA, 9 Jun 1917. Killed in aircraft accident 28 Mar 1945.

⁴ Rommel's command now consisted of:

		<i>Panzer Army Africa</i>		
		<i>German Africa Corps</i>	<i>X Army Corps</i>	<i>XXI Army Corps</i>
<i>90 Light Div</i>	<i>15 Panzer Div</i>	<i>Brescia Inf Div</i>	<i>Ariete Armoured Div</i>	<i>Trento Inf Div</i>
	<i>21 Panzer Div</i>	<i>Pavia Inf Div</i>		<i>Sabrata Inf Div</i>
			<i>Trieste Motor Div</i>	

⁵ The Chiefs of Staff originally requested Auchinleck to launch an offensive to secure the main Cyrenaican airfields in time to cover a convoy to Malta in mid-Apr. In London Malta was regarded as the dominant factor in Mediterranean strategy. Auchinleck's view was that: "Grave as Malta's position had undoubtedly become, I believed that by launching the offensive prematurely we should risk an even greater calamity, that we might lose Egypt." After many cables and a conference in Cairo an offensive in mid-May was projected. Japanese advances in the Indian Ocean, however, threatened the main supply line to the Middle East and Auchinleck suggested that it might be better to reinforce India and abandon the idea of an offensive in Libya, even if thereby Malta was lost. On 10 May, however, Mr Churchill instructed him to launch an offensive in time to distract enemy attention from a convoy sailing to Malta during the second week in Jun. The risk to the safety of Egypt was accepted by the War Cabinet.



destroying trucks and a petrol bowser. The next day the squadron made two attacks early in the afternoon on a concentration of about 500 enemy vehicles fifteen miles north-west of El Adem. They reported this target as suitable for heavy attack, and at 5.30 p.m. eight Kittyhawks led a force of twelve Bostons back to the area under cover of fighters of No. 450 and No. 250. Visibility was poor but the column was found in the Rotonda Harmet area, and the fighter-bombers attacked from 4,000 feet followed by the Bostons; several direct hits were achieved and further confusion resulted from low-diving machine-gun attacks made by the fighters of the two R.A.A.F. squadrons. Six more Kittyhawks from No. 3 returned to this target an hour later and found seven large fires still burning.⁶

Under this pressure from the air the German armoured divisions were unable to keep up the momentum of their attack, and, after an abortive thrust towards Acroma on 28th May, began to fall back towards the narrow gap in the minefield which had finally been cut by the *Trieste Division*. During the whole of 29th and 30th May targets were ideal for both fighters and bombers, which carried out a shuttle service devoted entirely to ground attacks. On two occasions the army reported that more than fifty enemy vehicles had been left burning after attacks by fighter-bombers, which were enjoying outstanding success. By 31st May, when the enemy was apparently attempting to withdraw completely, fighter-bombers were ordered to revert to their normal duties to prevent high wastage of Kittyhawks, for which there were few replacements. During this five-day period of intensive effort⁷ the R.A.F. appeared to have won the first round of the battle, and morale rose high, especially in No. 239 Wing which had more than fulfilled its planned role as an attacking spear-head. No. 3 lost only two pilots through the hazards of low-level attack against static defences, while No. 450 lost one pilot killed and four missing during fairly even battles with enemy aircraft, five of which were claimed as destroyed. Operating frequently in or just above the clouds of dust raised by army vehicles, the Kittyhawks of Nos. 3 and 112 suffered considerably from minor maintenance defects, which cast an added burden on the ground crews. On several occasions one or more aircraft were forced to return owing to engine trouble and an unusual series of forced landings occurred. Fortunately most of these took place in friendly territory and the reappearance of pilots who had been missing for periods varying from a few hours to several days was not uncommon. On 27th

⁶ Two English prisoners accompanying this column reported that 6 large Italian ammunition trucks and 15 other trucks were destroyed. The strafing attacks from 50 feet were most effective and the demoralised Italians made no attempt to extricate their vehicles from danger.

⁷ The complete effort of Western Desert Cd fighters, with RAAF contribution in brackets, was:

Duty	27th May	28th	29th	30th	31st	Total
Offensive sweeps . . .	71	60	78 (10)	68	94 (5)	371 (15)
Ground attack . . .	37 (12)	2	69	31	1	140 (12)
Fighter-bomber . . .	40 (23)	63 (35)	46 (17)	34 (10)	40 (12)	223 (97)
Bomber escort . . .	33 (11)	71 (22)	37 (18)	73 (6)	18 (8)	232 (65)
Recce. escort . . .	21	—	—	1	11	33
Local defence . . .	60	108	62	63	45	338
Shipping defence . . .	92	25	58	55	6	236
	354 (46)	329 (57)	350 (45)	325 (16)	215 (25)	1,573 (189)

May Barr was missing for four hours and two sergeant pilots apparently lost on the same sortie returned the following day. Barr was missing again from 30th to 31st May.

Auchinleck now determined to counter-attack and drive towards Tmimi and Afrag, but before preparations were complete it became evident that Rommel intended no general withdrawal. By 2nd June, aided by heavy sandstorms which gave immunity from both ground and air attack, he had extended the gap in the frontal minefield to a channel ten miles wide and had regrouped his armoured forces in this area, which became known as the "Cauldron". On 1st June No. 450 did not operate at all, while No. 3 recorded only six sorties during which two Me-109's were shot down without loss. No bomber flights were possible on 2nd June and only twenty-five offensive sorties were made by the whole force of fighters. When the storms abated on 3rd June the armoured forces of both armies confronted each other in a temporary stalemate. The R.A.F. could still not intervene, however, as heavy Italian attacks on Bir Hacheim now led to the switching of aerial strength to the southern sector of the front.⁸ On 3rd and 4th June 53 fighter-bomber sorties were made, of which No. 3 provided 26, and altogether some 110 enemy vehicles were put temporarily out of action. The fighter force also flew 300 offensive sorties over Bir Hacheim between 3rd and 5th June to limit German bombing attacks. The French garrison of Bir Hacheim was thus helped to stand firm during the first week in June.

Rommel, however, encouraged by the complete failure of a British attack on the night of 5th-6th June, now lunged forward with his main tank force towards Knightsbridge, and a heavy armoured battle developed on 6th June. Once more the fighter-bombers were switched to meet the main enemy threat. After one early-morning attack by Nos. 3, 112 and 450 near Bir Hacheim, the whole of No. 239 Wing effort was concentrated against German armoured forces. Limited support was also given by light bombers, but, as previously, the dust and confusion of the tank battle gave them little opportunity to intervene. On 6th June No. 3 flew 39 out of 69 fighter-bomber sorties, and on the following day 29 out of 80, while No. 450 recorded 42 flights as fighter escort to Nos. 3 and 112. Pilot Officer Twemlow and Sergeant Cormack⁹ of No. 250 were also prominent in dog-fights with German and Italian fighters between Acroma and Knightsbridge on 6th June. The battle in this sector then subsided but the German armoured forces had advanced sufficiently not only to secure their bridgehead through the minefield, but also to outflank Bir Hacheim. Against this fortress Rommel now directed the best of his infantry and some tanks.

⁸ The RAF and not the armoured ground force was ordered to assist the French at Bir Hacheim because Gen Ritchie still hoped to reduce the German tank strength by a major battle in the "Cauldron". It was also feared that the enemy move against Bir Hacheim was merely a feint to divide the British tanks which could then be destroyed piece-meal.

⁹ F-Lt D. J. Cormack, DFC, 407412. 450 Sqn, 250 Sqn RAF, 452 Sqn. School teacher; of Orroroo, SA; b. Stirling North, SA, 3 Nov 1914.

While Rommel rapidly switched his ground blows from one sector to another, leaving the Eighth Army flat-footedly guarding the exits from the "Cauldron", he also had at this period unparalleled support from the German Air Force. During the first few days of the offensive Kesselring had mounted between 300 and 350 sorties a day,¹ and a new peak of intensity was reached with the whole dive-bomber force employed against Bir Hacheim, which suffered also the onslaught of 30 to 40 attacks daily by long-range bombers from Crete. No fewer than 1,400 German sorties were made against Bir Hacheim, while the R.A.F. attempted both to stem this weight of air assault and to hinder the relentless encircling movement of Axis ground forces. Offensive British sorties also rose to new heights, and ground crews responded magnificently to the demands for serviceable aircraft. One Kittyhawk of No. 3 flew fifteen times within three days and several others exceeded ten sorties. Between 8th and 10th June No. 3 flew sixty bombing sorties against concentrations of trucks near Bir Scerrara, and, although in almost every operation severe light-calibre flak was encountered,² the squadron emerged from this intensive period without the loss of a single plane. In the same period No. 450 flew sixty-two escorts to the fighter-bombers losing one aircraft and having two more damaged on 8th June when they joined in strafing attacks after the bombing. Nevertheless despite the efforts of the R.A.F. fighters and an attack launched by the Eighth Army against *90th Light Division*, the position at Bir Hacheim steadily deteriorated. Transport aircraft of No. 216 Squadron R.A.F. dropped urgent supplies to the beleaguered French on the night of 9th-10th June, but already the fortress was subjected to shelling of an intensity which made its occupation impossible. Late on 10th June the evacuation was begun and the following day Bir Hacheim was in Axis hands. Auchinleck was now forced to look for danger from the south as well as from the west, and though the crucial tank battle on which all hopes depended had not yet been waged, there was a possibility that the Eighth Army would be hemmed in between this new front and the coast with little room to manoeuvre.

At this precise moment, when the battle in Cyrenaica took such an adverse turn, it was necessary to proceed with the plan to sail convoys to Malta simultaneously from Gibraltar and Alexandria. Still more Spitfires had flown in on 18th May, and the actual fighter defences of the island were fairly secure. The reduced German air units in Sicily still made some attacks, but the Italians mounted raids only by night. The situation had improved sufficiently by 24th May for No. 104 Squadron R.A.F. (Wellingtons) to return to Luqa and resume the pounding of Italian naval bases and convoy terminal ports. Fuel supplies and airfield space were

¹ Of these the dive bombers accounted for 100 and the single-engined fighters between 150 and 200. The fighter effort represented 2½ sorties each day for every serviceable aircraft.

² The importance of the RAF fighter-bombers is echoed in the war diary of the German *Africa Corps* which recorded on 8 Jun: "The supply situation, especially with regard to gun ammunition is becoming more and more serious In addition to the difficulties connected with the long supply route, daily attacks are being carried out on supply columns even when proceeding with convoy guard The employment of 2-cm. flak for convoy guard is no longer sufficient."

the limiting factor in restoring Malta's capacity to wage an offensive and the Wellingtons were withdrawn on 10th June to make room for one squadron of torpedo bombers. These were to prevent any interference from the Italian fleet, while the Spitfires were to guarantee the convoys freedom from air attack in a limited area around Malta. The main defence and air support for the Malta convoys had to be supplied by aircraft based elsewhere. For the convoy east-bound from Gibraltar only anti-submarine patrols were possible and chief reliance was placed on an extremely powerful naval escort including two aircraft carriers which were to fly off Spitfires during the last stage of the journey. Naval strength in the eastern Mediterranean was insufficient, however, to deter an attack by the Italian fleet, and a coordinated plan for air defence on a large scale seemed essential for the convoy sailing from Alexandria.

When the striking power of Malta and the navy fell to a low level in 1942 it was necessary to build up No. 201 Naval-Cooperation Group and to equip it for both scouting and strike duties. This expansion was delayed by the needs of the Far East for identical types of aircraft and crews. Australians on No. 39 Squadron (Beauforts) and No. 38 Squadron (Wellingtons) found themselves training for torpedo-strike operations, but neither squadron had been fully tested before June 1942. The bulk of reconnaissance and anti-submarine patrols fell on Nos. 230 (Sunderlands), 221 (radar Wellingtons) and 203 (Blenheim/Marylands).

Of major interest to Australians was the decision to proceed with the formation of a R.A.A.F. *Article XV* squadron originally authorised in August 1941. On 10th February 1942 No. 459 Squadron R.A.A.F., equipped with two Hudsons and four Blenheims, formed as an additional flight of No. 203 at Burg el Arab. The officer commanding No. 235 Wing at this time was Air Commodore Cole³ who gathered together an Australian administrative and maintenance party for the new squadron from among the men scattered throughout the Middle East. Aircraft and crews promised from the United Kingdom, however, were repeatedly diverted to the Indian Ocean. Only seven anti-submarine patrols were flown with the borrowed Blenheims before 31st May when twelve Hudsons were at last supplied to No. 459. Squadron Leader Hennock who arrived on 19th April, and his flight commanders, Squadron Leader Howson⁴ and Flight Lieutenant Campbell,⁵ had, however, done much to fuse the squadron into a well-trained team when it commenced operations independently from LG-40 on 1st June. For the first week it conducted patrols over coastal shipping between Mersa Matruh and Sidi Barrani, and was then held in readiness for the Malta convoy. At Sidi Barrani, No. 39 Squadron, which had suffered similar diversion of its aircraft and crews, was brought up

³ AVM A. T. Cole, CBE, DSO, MC, DFC. (1916-18: Nos 1 and 2 Sqs AFC.) Comd Southern and Central Areas 1939-41, 235 Wing RAF 1941-42; fwd air controller Dieppe Raid 1942; AOC RAF N Ireland 1942-43, North-Western Area 1943-44. Regular air force off; of Malvern, Vic; b. Glen Iris, Vic, 19 Jun 1895.

⁴ W Cdr P. W. Howson, OBE, 222; comd 459 Sqn 1942-43. Regular air force off; of Mosman, NSW; b. Sydney, 22 Oct 1918.

⁵ W Cdr I. L. Campbell, 249. 459 Sqn, comd 454 Sqn 1942-43, 15 Sqn, comd 14 Sqn 1944, RAAF Stn Canberra 1944-45. Regular air force off; of Melbourne; b. Elwood, Vic, 7 Oct 1914.

to a strength of fifteen Beauforts early in June and arrangements were made for the temporary employment of the whole of No. 205 Group, No. 14 Squadron R.A.F. and the Halverson Detachment of U.S.A.A.F. Liberator bombers in support of this operation.⁶ Again, at Malta, Beauforts of No. 217 Squadron (en route to India), Beaufighters of No. 235 (on loan from Coastal Command), and ten radar Wellingtons were congregated specially for the passage of the vital convoys. Finally, as the land battle swung increasingly in favour of Rommel, Nos. 252 and 272 Squadrons of Beaufighters were brought forward to give long-range fighter cover now that the fighter force in Cyrenaica could no longer play its allotted role.

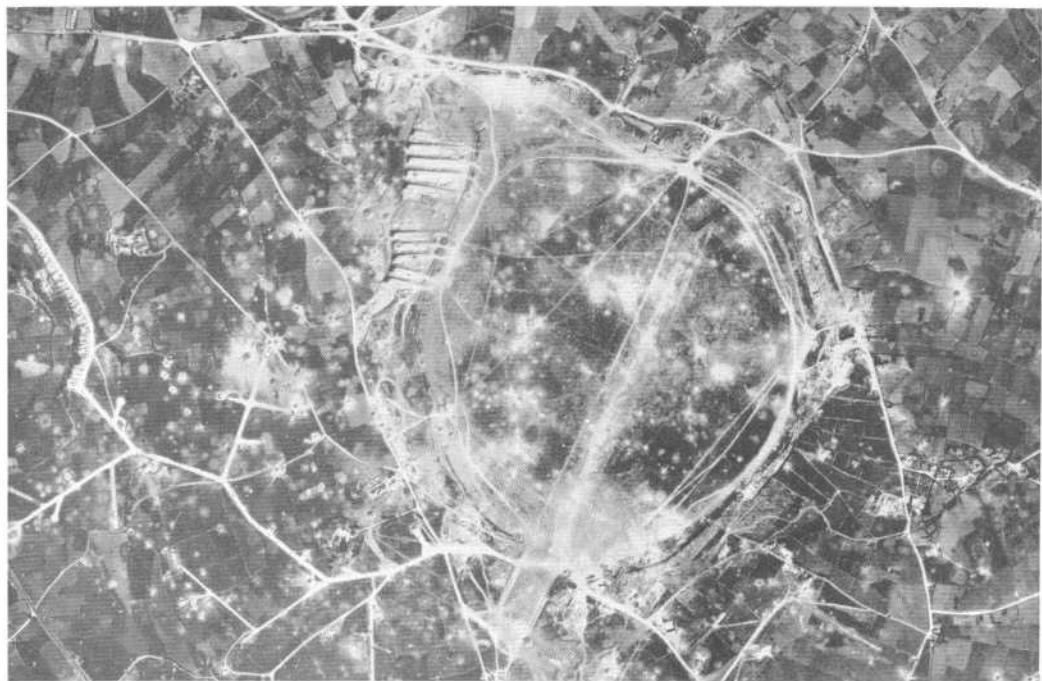
On 8th June Wellingtons began to bomb German airfields on Crete and this was their nightly task until 13th-14th when Benghazi and Berca became their targets because the airfields there also menaced the progress of the eastern convoy. Crete was also attacked by the light bombers of No. 14 between 8th and 20th June. Of the thirty-three aircraft in this series of raids, sixteen were captained by Australians, one of whom made a notable attack on 13th-14th. In his own words Pilot Officer Elliot⁷ "filtered in with some enemy aircraft to find Heraklion with the chance light and flarepath in full operation" and he was able to drop his bombs accurately from an altitude of 3,000 feet. Both convoys sailed on 12th June and at first proceeded steadily towards Malta. The Alexandrian convoy suffered some air attacks but these were beaten off by fighters based in Egypt. However, late on 14th June when aircraft of No. 69 reported a formidable Italian fleet in the Ionian Sea, this west-bound convoy was turned about to leave the area clear for torpedo operations. A night sortie against the Italian fleet by Nos. 38 and 217 from Malta failed, but the Liberators were prepared to attack with bombs at 9.30 a.m. on 15th June. As there was a danger that the convoy might be overtaken, No. 39 was also directed to send out twelve Beauforts to support the Liberators. The twelve torpedo bombers, two captained by Pilot Officers Hooper⁸ and Marshall,⁹ left Sidi Barrani at 6.20 a.m. but were intercepted off Derna by five Me-109's. The enemy fighters shot down two Beauforts and damaged five others so extensively that they were forced to turn back, or, as in the case of

⁶ The B-24's of the Halverson Detachment (Col Harry A. Halverson, U.S.A.A.F.) were "a prize example of a unit pulled hither and yon by the alarms and crises of early 1942. The unit was originally set up under the code name HALPRO and trained in the greatest secrecy for the bombing of Tokyo out of Chinese bases, with the proviso that its employment would depend on the global . . . situation which would obtain when the unit was ready for commitment. When that time arrived, in mid-May, the deteriorating situation in Burma rendered unlikely the prospect that the B-24's could be logistically supported in China. Gen Marshall then secured the President's approval to divert the aircraft to Egypt for a surprise raid on the Ploesti [Rumanian] oil refineries . . . Negotiations were set in motion to obtain the use of landing grounds in the Caucasus [the Soviet approval came too late to be of any use] . . . The detachment was instructed to proceed to Khartoum and await orders . . . [which] directed Halverson to the Delta for the Ploesti mission, and, because of the full-blown emergency which quickly developed in the Middle East, his bombers were fated to remain there." Craven and Cate (Editors), *Army Air Forces in World War II*, Vol II (1949), pp. 9-10.

⁷ F-Lt J. H. Elliot, DFC, 406241. 14 Sqn RAF, 13 Sqn. Commercial traveller; of Perth, WA; b. North Perth, 10 Apr 1915.

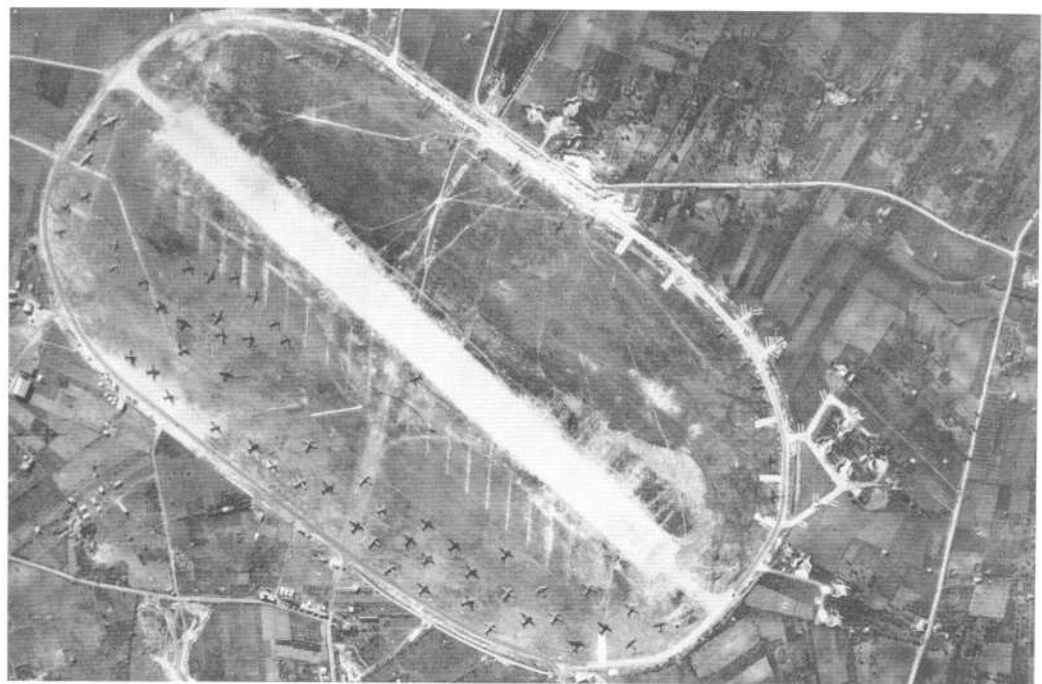
⁸ F-Lt R. C. Hooper, 400144. 47 and 39 Sqns RAF. Grazier; of Harrow, Vic; b. Ivanhoe, Vic, 1 Sep 1917.

⁹ Sqn Ldr R. S. O. Marshall, DFC, 402244. 86, 47 and 39 Sqns RAF. Grazier; of Moree, NSW; b. Sydney, 12 Jan 1918. Killed in action 3 Mar 1943.



(Air Ministry)

Ta Kali airfield and dispersals on Malta, in April 1942, pockmarked by hundreds of bomb craters.



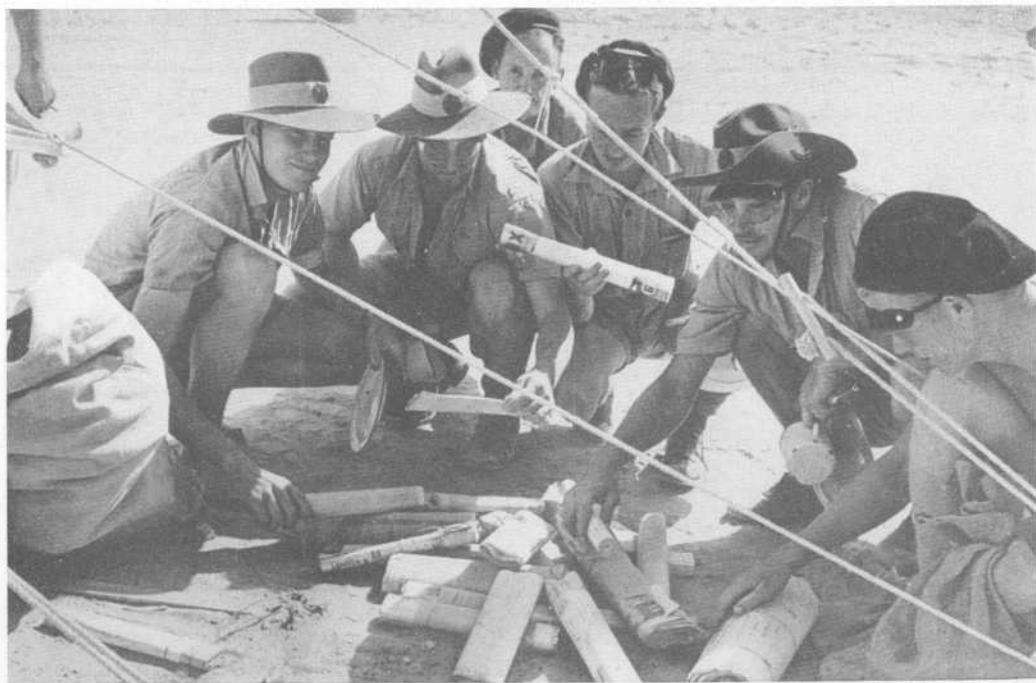
(Air Ministry)

Castelvetro airfield on near-by Sicily in April 1942, showing German Ju-52 transports and Italian SM-82 bombers.

Sgt J. K. Wood, R.A.A.F., and W-O R. S. Spence, R.C.A.F., who evaded capture when their Wellington was forced down near Fort Capuzzo after an attack on Tobruk, and walked 350 miles in about three weeks to Allied lines, via the Qattara Depression, in October 1942.



(Air Ministry)



Mail time in the Western Desert.

(Air Ministry)

Hooper, attempt to fly direct to Malta. The remaining five torpedo bombers reached and attacked the Italian fleet just as the Liberators were completing their bombing run. One certain hit on a battleship and an apparent hit on a destroyer were noted by the Beaufort pilots before they flew hurriedly away through a curtain of gun fire to land as ordered at Malta. For Marshall this was no easy task for his aircraft had been heavily damaged, and although he finally reached Luqa, his own and another Beaufort were completely destroyed as he landed on the overcrowded airfield.

Striking power at Malta and in Egypt had been exhausted by these raids and a period of considerable anxiety followed from 9.44 a.m. when the Italian fleet was last sighted until 1.20 p.m. when Pilot Officer Foot¹ of No. 203 found the enemy ships steaming south-eastwards at twenty-five knots towards the halted convoy. Foot remained shadowing, and at 3.25 p.m. reported that the fleet had turned on to a north-westerly course, which it was still holding two hours later when the Maryland was forced to return to Burg el Arab. This enemy withdrawal gave a faint hope that the convoy might yet force its way through to Malta, but with ship-borne gun ammunition almost exhausted, and little possibility of effective air support, it was eventually decided to recall all the ships to Alexandria. No. 459 Squadron had played its minor part of anti-submarine protection well, flying twenty-four sorties between 14th and 16th June, for the loss of one Hudson. The long-range Beaufighters had done their best to give protection against enemy air attack, but they were too few for the task; two Australian pilots were among the seven shot down in almost continuous battles around the convoy.

Fortunately the convoy from Gibraltar met with more success, and, protected throughout the last hundred miles of the journey by continuous patrols of a strength of six Spitfires, two merchant ships reached Malta safely on 16th June. The cost of this temporary alleviation of Malta's chronic supply position was very high for several naval and four merchant ships were sunk during the attempt. In the heavy air fighting over this convoy Pilot Officers Yarra² and Goldsmith scored further successes. Two newcomers, Flight Sergeants Reid³ and Parkinson⁴ also achieved prominence among fighter pilots based at Malta. Although night raids continued, the enemy became more and more reluctant to attack by day during June. Slowly, therefore, and still hindered by lack of fuel and ammunition, the ability of Malta to resume offensive tasks mounted under cover of the local air superiority gained by the Spitfires.

¹ Sqn Ldr H. D. Foot, 404095. 39 and 203 Sqns RAF; comd 92 Sqn 1945. Grazier; of Hughenden, Qld; b. Atherton, Qld, 26 Jul 1916.

² F-Lt J. W. Yarra, DFM, 402823. 232, 64, 185 and 249 Sqns RAF, 453 Sqn. Printer's apprentice; of Grafton, NSW; b. Stanthorpe, Qld, 24 Aug 1921. Killed in action 10 Dec 1942.

³ F-Lt L. S. Reid, DFC, 400735. 504, 130 and 185 Sqns RAF; comd 79 and 452 Sqns 1945. Clerk; of Carnegie, Vic; b. Clifton Hill, Vic, 21 Sep 1916.

⁴ F-Lt C. H. Parkinson, DFC, 402877. 56, 19, 603, 249 and 229 Sqns RAF, 457 Sqn; comd RAAF Chem Rsch U 1944. Business mgr; of Killara, NSW; b. Sydney, 29 Dec 1916.

No. 239 Wing was not called upon to assist the passage of the Malta convoy. With the loss of Bir Hacheim the safety of the whole Gazala line depended on the ability of the Eighth Army to defeat the impending enemy armoured drive, and close-support air units were thus forced to give their attention solely to the battle ground itself. The two light-bomber squadrons⁵ cooperated with No. 239 Wing on 11th June in attacks on the *21st Panzer Division* south-west of Knightsbridge. The Bostons continued to bomb throughout the night, and at dawn on 12th June the R.A.A.F. squadrons attacked a large concentration of lorries carrying troops of the *90th Light Division* advancing six miles south-west of El Adem. At 9.20 a.m. the same day No. 3 returned with Hurricane tank-destroyers of No. 6 Squadron R.A.F. for further attacks in this area.⁶ The effort was sustained all day, the Australians flying sixty-six of the total of 457 offensive sorties made by R.A.F. fighters, but nevertheless the Eighth Army steadily lost ground. A natural sand-storm and the dust raised by the tank battle severely hindered R.A.F. efforts on 13th June and the three British armoured brigades (2nd, 4th and 22nd) suffered severe losses under a concerted attack from the *15th* and *21st Panzer Divisions*. The same conditions prevailed throughout 14th June when heavy fighting took place round Acroma and the ground situation became so critical that at dusk the 1st South African Division was ordered to retire from Gazala. For two days and nights the Gazala-Tobruk road was crowded with trucks and troops heading eastward, offering "such a targets as pilots' dreams are made of".⁷ The R.A.F. fighters at Gambut flew 286 protective sorties during this period to such effect that only six men were killed by enemy air attack. Though this could not reverse the verdict of the land battle, at least it enabled the Eighth Army to avoid the worst consequences of defeat.

The Australian contribution to this epic air defence was relatively small. On 14th June twenty-six protective sorties were flown for the loss by capture of Flight Lieutenant Chinchin,⁸ but on the following day only fifteen were recorded, and on 16th June none at all. In part this was because of a decline in serviceability⁹ but mainly because despite all other considerations No. 239 Wing was retained primarily for purely offensive tasks. Thus, on 15th June, when Rommel turned swiftly east-

⁵ Only 12 and 24 South African Sqns operating Bostons were available at this period. 223 Sqn had been withdrawn because of technical troubles with its Baltimore aircraft and 14 Sqn was operating against Crete in support of the Malta Convoy.

⁶ These attacks are recorded in the war diary of the German *Africa Corps* with a further note that the *Luftwaffe* had not yet operated.

There is a partial reversal of intention and effect at this stage. Auchinleck had been ordered to mount an offensive in the desert to support and safeguard the west-bound convoy for Malta. In the event the convoy appeared to draw off air attack from army units hastily withdrawing from the Gazala line. This view is put forward by the South African historians J. A. I. Agar-Hamilton and L. C. F. Turner in *Crisis in the Desert May-July 1942* (1952), but the major factor in safeguarding the retreat was still the deterrent power of the RAF.

⁷ P. Guedalla, *Middle East, 1940-42*, p. 176.

⁸ Sqn Ldr G. T. Chinchin, MBE, DFC, 250704; 3 Sqn. Clerk; of Geelong, Vic; b. Gardenvale, Vic, 31 Jul 1915.

⁹ Dust was still causing maintenance difficulties, apart from the fact that No. 3 had 2 aircraft destroyed and 5 damaged by ground fire between 11 and 13 Jun and in the same period No. 450 lost 5 Kittyhawks.

wards from Acroma, by-passed the strong-point at El Adem, and struck at Sidi Rezegh, the Australian squadrons were busy throughout the afternoon harassing enemy spearheads. Shortly before 2 p.m. Flight Lieutenant Spence led a mixed force of fighter-bombers and "tank-buster" Hurricanes against a column he had located during an earlier reconnaissance, and by mid-afternoon the whole of No. 239 Wing was active in both the El Adem and Sidi Rezegh sectors. Boston bombers also delivered increasingly heavy attacks and by nightfall had made thirty-seven sorties. This German drive not only threatened to isolate Tobruk, but had by this time penetrated to within twenty miles of Gambut where the whole fighter force now lay without protection. The situation was perilous but, on the 16th, when Tactical Headquarters of the Eighth Army retired to Salum, not only did the fighters continue to operate from Gambut but Advanced Air Headquarters remained behind to control them. "The price of the gamble," wrote Group Captain Beamish,¹ "was the whole of the fighter force"—but it was a gamble rightly undertaken. Morale among both air and ground crews was extremely high, and with targets at such a short distance there was a natural desire to achieve the utmost damage before retiring. A personal element had been introduced, for Gambut, desolate, barren, dusty though it was, was nevertheless the home of the fighter force. More, it was the true birthplace and testing ground of what was later to be known as the Desert Air Force, but which then existed as a proud self-conscious aggressive fellowship close-knit around No. 239 Wing. At Gambut had been hammered out the problems of escort tactics, mobility and control; there had emerged the Kittyhawk-bomber and a more effective system of direct air support.

On 16th June the Australians required no urging for them to join in an attempt to hold Gambut and turn the tide of battle. A tremendous effort was demanded of the maintenance personnel who were busy on the Kittyhawks by 4 a.m. and did not cease until darkness made further work impossible. With only 13 aircraft No. 3 was able to fly 62 sorties, one Kittyhawk flying in all 8 attacks made by the Australians that day. Pilots were equally busy; Barr flew 6 times, Spence, 5, Sergeant Kildey², 4 and 8 other pilots 3 sorties each. No. 450 made 25 escort sorties in its own name and with modified Kittyhawks which arrived during the day flew a further 15 bombing sorties with Nos. 3 and 112. In all 139 fighter-bomber attacks were flown, the Australians accounting for 77 in 8 visits to the battlefield between 8.50 a.m. and 8.20 p.m. Tanks, motor transport, gun emplacements, and troop carriers were repeatedly attacked despite fierce ground fire and persistent attempts of the German Air Force to interfere.³ The enemy was maintaining heavy patrols in the battle area

¹AVM G. R. Beamish, CB, CBE, RAF. Comd HQ RAF Crete and 235 Wing RAF 1941; SASO AHQ RAF Libya 1942, NATAF 1943; AOC Air Def Gt Britain 1943, 44 Gp RAF 1943-45. Regular air force offr; of Coleraine, Co Derry, N Ireland; b. Dunmanway, Co Cork, Eire, 29 Apr 1905. Irish International Rugby Union footballer for 8 years.

²Sqn Ldr E. K. Kildey, DFM, 400766. 3 Sqn; comd ADHQ Pt Moresby 1944-45. Clerk; of Devonport, Tas; b. Leeton, NSW, 30 Apr 1919.

³These attacks were sufficiently damaging to evoke a special enemy directive to 21 Panzer Div to disperse its motor transport. See entry 0900 17 Jun *Africa Corps* war diary.

and three times the Australians were forced to fight their way to the target and back. Two Kittyhawks were lost; 2 damaged, crash-landed at Gambut, 2 others received lesser damage and a seventh pilot was wounded on No. 3 Squadron alone.

Despite all efforts of ground and air forces, the *21st Panzer Division* was able late on 16th June to force its way through to Sidi Rezegh and Belhamed and by nightfall the end at El Adem was in sight. Nevertheless when battle was joined next morning there was no weakening in determination of the defenders. The Bostons and the R.A.F. fighters again swept over the battlefield bombing, strafing and reporting enemy movements. A significant change was that German fighters now appeared in full strength, and a renewed struggle for air supremacy was soon in progress. Shortly after 10 a.m. six Australian fighter-bombers were attacked by Me-109's over El Adem, and not only were forced to jettison their bombs but lost two aircraft in the ensuing mêlée. This challenge of increased enemy activity was quickly confirmed by reconnaissance reports that German fighters were established at Gazala, and no time was lost in preparing to attack them while they refuelled at this base. The task was assigned to No. 239 Wing which dispatched fifteen fighter-bombers with sixteen escorting Kittyhawks early that afternoon. This force made out to sea, turned west and climbed to 17,000 feet and after half an hour turned south and reached Gazala without being detected. Thirty Me-109's were drawn up on Gazala No. 2 airfield and more than half of these were severely damaged in a swift low-level bombing attack; only light gun fire opposed this surprise stroke and there was no air opposition, the one enemy aircraft which attempted to take off being swiftly destroyed. This single operation had a noticeable effect in reducing enemy fighter effort during the following days when the beaten Eighth Army fell back into Egypt, but it could not materially affect the battle raging at Sidi Rezegh. Late in the afternoon of 17th June the El Adem strong-point fell and the enemy began to move towards Gambut and the coastal road. By dusk, with German spearheads only twelve miles away, the fighter squadrons withdrew to Sidi Azeiz leaving only a salvage and demolition party at Gambut; at midnight these men withdrew and by 4 a.m. on 18th June the headquarters of the *21st Panzer Division* was established on the airfield.

The forced withdrawal of the air force from Gambut on 17th June marked the end of the battle for Cyrenaica. Despite initial setbacks Rommel had manoeuvred the Eighth Army from its Gazala positions, risen superior to supply difficulties, scattered the British armoured brigades, forestalled any attempt to establish a new defence line hinged on Tobruk, and finally achieved the investment of that important port. The Eighth Army fell back from El Adem to the Egyptian frontier covered successfully by the fighter force, which was hampered by the need to make two moves on successive days. No. 450 reached Sidi Azeiz late on 17th June and operated twice the next morning before it was ordered to LG-75, an airfield south of Sidi Barrani. The maintenance convoy of No. 3 had

been delayed and camped in the desert and thus could not operate from Sidi Azeiz until noon on 18th June after which it also withdrew to LG-75. The Australians flew only thirty-nine sorties during the following two days operating to the limit of their range to cover army units still west of the frontier. The value of the raid against Gazala airfield was emphasised by the lack of enemy opposition to these patrols, only one encounter being made. This was on 18th June when Flight Lieutenant Williams⁴ of No. 450 destroyed a lone Me-109 over Gambut. Unfortunately it was now impossible for the R.A.F. fighters to reach Tobruk against which the bulk of the enemy army turned on 20th June. A few light bombers attacked enemy concentrations which penetrated the eastern sectors of the port, but the collapse of the whole defence position was too rapid to allow any effective redress from the air.

The fall of Tobruk made any stand on the frontier impracticable and the Eighth Army prepared to fall back to Matruh. Rommel wasted no time in preparing to attack Egypt, and for its part the R.A.F. strove to reconnoitre and impede the enemy progress.⁵ Shortly after noon on 21st June five Kittyhawks of No. 3 dropped bombs among trucks assembling on Sidi Azeiz airfield, and at dusk both R.A.A.F. squadrons escorted Bostons against the same target. Twenty-six reconnaissance patrols were flown on 22nd June, and the following day an early-morning patrol of No. 3 bombed enemy vehicles on the Sheferzen track north of Gareh ed Doma. The pilots reported further large concentrations of troops and vehicles in this area, and these were bombed throughout the day by Bostons.⁶ One or both R.A.A.F. squadrons joined in three of the attacks dropping twenty-three 250-lb bombs on thirty-two escort sorties in addition to providing a further eleven reconnaissance flights. The enemy advance, however, was rapid enough to threaten the security of LG-75, and after their last duty for the day both squadrons withdrew to Sidi Haneish.

On 24th June the Bostons flew fifty-three sorties against the *21st Panzer Division* which was advancing between Maddalena and Sofafi. The fighters had not fully settled in at their new airfields and could mount only 109 flights, of which the Australian squadrons made thirty. Five aircraft of No. 3 made a reconnaissance sweep, and in the only encounter with the enemy recorded that day shot down two Me-109's for the loss of one Kittyhawk. Guided by their report four light-bomber attacks against these columns followed during the afternoon and evening, each time with R.A.A.F. escort.

⁴ Sqn Ldr J. E. A. Williams, DFC, 40652 RAF. 112, 94 and 260 Sqns RAF; comd 450 Sqn 1942. Regular air force offr; of Sydney; b. Wellington, NZ, 6 May 1919. One of the 50 offrs murdered after the mass escape from *Stalag Luft III*, 29 Mar 1944.

⁵ On 21 Jun the *Africa Corps* was ordered from Tobruk to an area south-east of Gambut, there to rest for 1 or 2 days and await *Luftwaffe* units. These orders were changed on 22 Jun: "The enemy is in full retreat eastwards and must be left no time to reorganise. Units will therefore continue their advance eastwards, and days set aside for rest are cancelled. The *Africa Corps* will move forward at 1930 hours and reach the area north of Gareh ed Doma. From there it will continue its advance southwards on 23rd June and then attack on both sides of the desert track through the barbed wire entanglements" *Africa Corps* war diary.

⁶ This was *21 Panzer Div* which, with *15 Panzer Div* on its right, was moving south-east and swung eastwards at 3.30 p.m. and reached the frontier at 7.30 p.m.

Air operations reached a new climax on 25th June when No. 3 flew forty-two fighter-bomber sorties, partly in six attacks against the enemy columns advancing on the coast road towards Matruh and partly in four joint attacks with Bostons against the *21st Panzer Division*. No. 450 accompanied the light bombers eight times to the area between Matruh and Sofafi, fifteen of its forty-one flights being devoted to bombing as well as escort duty. Even this impressive total was dwarfed next day when No. 3 flew sixty-two sorties and No. 450 forty-five. The German fighters had again caught up with Rommel's advance and there were continual clashes throughout the day. Three pilots of No. 450 were shot down behind the enemy lines, and No. 3 suffered a severe blow when shortly after noon Barr was also shot down just after he had bombed enemy vehicles near Minqar el Ahmar. Gibbes, from whom Barr had taken over command on 26th May, had now fully recovered from his injuries and in turn replaced Barr. Most of the day's effort was devoted to joint attacks with Boston aircraft, the Kittyhawks of No. 3 invariably bombing as well, and playing a proportionately larger part as more and more were modified to carry a 500-lb instead of a 250-lb bomb. However, although many German vehicles were destroyed in the El Alimat and Minqar el Ahmar areas, Rommel was still able to keep armoured pursuit groups advancing swiftly, and it became clear that the Eighth Army could fight only rearguard actions at Matruh. At 10.30 p.m. on 26th June the squadrons at Sidi Haneish were ordered back to El Daba.

For the next four days fighter operations declined; partly in order to rest squadrons and build up serviceability for the next great battle which all knew would come when the Eighth Army made its projected stand at El Alamein; and partly because ground parties became inextricably mixed in the great mass of army vehicles scrambling back from Matruh. El Daba itself was only a temporary base and was evacuated on 28th June, although all serviceable aircraft of No. 239 Wing remained until next morning to assist the break-out of the X Corps from encircled Matruh. When the Kittyhawks and their skeleton maintenance parties left at noon, the *90th Light Division* occupied El Daba almost on their heels, and pushed on till by evening they were in Sidi Abd el Rahman; the *21st Panzer Division* moved into the Hiseiyat el Qiseir area. On 30th June, with the R.A.F. operational bases established near Amiriya, the fighters and light bombers returned in greater strength to their tactical role of harassing enemy columns. The early-morning reconnaissance of five Kittyhawks of No. 450 covered the whole area between Charing Cross and El Alamein and returned with an accurate report of German and Italian dispositions. Two bombing attacks followed that afternoon by Bostons escorted by the R.A.A.F. squadrons against traffic on the coast road ten miles west of Daba, but a violent sandstorm then arose which prevented further flying.⁷

⁷ During Jun 3 Sqn had recorded the impressive total of 652 hours on 633 sorties for the loss of 9 aircraft. This average of over 20 sorties a day for a whole month gives some measure of the RAF effort during the debacle of defeat.

By the end of June most of the Eighth Army had taken up positions extending from the coast near El Alamein to the north-eastern tip of the Qattara Depression. The width of this front was barely thirty miles and it could not be outflanked, but apart from the strong fortifications at El Alamein itself it depended on natural features such as the El Ruweisat Ridge which could not all immediately be adequately manned. There was little doubt that the *Panzer Army Africa*, even though weakened by losses and hampered by lack of supplies, would attempt an immediate breakthrough before this defensive line could be developed in depth. To the R.A.F. therefore, which alone among the protagonists had lost little during the last month except its airfields, fell the enormous responsibility of reconnaissance to prevent any surprise attack; and positive action to hinder and disperse enemy groupings large enough to penetrate weak sections of our defences. Throughout the first week in July Wellington medium bombers made nightly attacks on German concentrations in the immediate rear of the battle area, their bombing being greatly assisted by flares dropped by Albacore aircraft. Bostons and Baltimores performed some night operations and increased their day effort until, from 3rd July onwards, formations were attacking enemy targets at almost hourly intervals, and the daily sorties averaged 100. Fighters were continually in the air, reconnoitring, supporting bombers, bombing independently, or frustrating attempts of the enemy to employ his still numerically-formidable air force. Yet this phenomenal ability of the R.A.F. to operate at such intensity in the sixth week of a campaign, which in general had been one of bitter struggles and constant retreats, was possible only because maintenance personnel, both on squadrons and in repair depots, were organised in shifts and willingly worked every hour of the day and night. The earlier reorganisation in technical, supply, intelligence and operational sections of the R.A.F. bore magnificent fruit because the average serviceability of units remained at 75 per cent of nominal strength.

As anticipated, Rommel attacked on the morning of 1st July, thrusting at both El Alamein itself and Deir el Shein, an eminence covering the approach to El Ruweisat. At 9 a.m. six Kittyhawks from each of the R.A.A.F. squadrons went out with nine Bostons to Deir el Shein, fighting a running engagement with four Me-109's throughout the outward journey. One enemy aircraft was shot down, but six Kittyhawks were forced to jettison their bombs and one pilot had to bale out over the sea. Two similar flights during the afternoon were unopposed and fifty fires were started among the massed enemy vehicles. Next morning the Australians again escorted light bombers to the Deir el Shein assembly area and ten Kittyhawks of No. 3 returned there alone at 3.45 p.m. Towards evening fourteen R.A.A.F. Kittyhawks flew with twenty-one Bostons against formations near Ghazal on the coast road. Once more the Wellingtons struck hard throughout the night and on 3rd July no fewer than 130 light-bomber and 173 fighter-bomber sorties were flown.

This proved to be the crucial day for, although the *21st Panzer Division* pushed forward on the central sector to Alam Baoshaza, it failed to reach

its objective for the day. The British troops stood firm and repulsed the *Ariete Division* which was sent to support the overworked *Africa Corps* and towards evening, Rommel, who had been at advanced battle headquarters directing successive attacks during the day, reluctantly ordered his divisions to go over to the defensive. This decision was largely to ease the increasingly perilous supply position of the advanced spearheads because the Mukheisin-Deir el Shein base sector was under constant bombardment from the air. The two R.A.A.F. squadrons went there five times, once with bombers and four times alone; and the other squadrons in No. 239 Wing were similarly active.⁸

Auchinleck now ordered XIII Corps to counter-attack from the south, and at the same time the 9th Australian Division began to strengthen the northern sector, where fighting remained bitter throughout 4th July. After two successful joint attacks with Bostons in the Deir el Shein area, both R.A.A.F. squadrons, at 12.30 p.m., made a thorough reconnaissance of the coastal road as far as Daba and attacked a supply column near Ras Gibeisa. Shortly after 2 p.m. they bombed landing grounds ten miles west of Daba. On the return flight No. 450 swept low to rake with machine-gun fire a long column of vehicles near Daba; and a scouting Me-110 was promptly shot down into the sea by Flight Sergeant McBurnie.⁹ On the last sortie of the day at 6.30 p.m. five Kittyhawks of No. 3 bombed trucks at Sidi Abd el Rahman while No. 450 reconnoitred as far west as Fuka.

On both the El Alamein and El Ruweisat sectors the Germans and Italians began to erect fortified strong-points and to lay mine barriers. They were rushing reinforcements by air from Italy to Tobruk in an effort to build up strength for a new assault,¹ and on 5th July Rommel began to probe in a new direction when columns were sent round the flank of XIII Corps in an attempt to find weaknesses in the southern sector. The ever-present R.A.F., however, watched this new development, hindered it where possible, and brought back information which made counter-disposition of forces most economical and effective. At 11.30 a.m. on 5th July six Kittyhawks of No. 3 found and bombed a column five miles south-west of Deir el Mireir and at approximately the same time No. 450 reported 2,000 trucks passing through Deir el Mireir from the Bir Mukheisin assembly area. Three hours later both Australian squadrons returned to find these two forces concentrated near Deir Alinda five miles east of Bab el Qattara, and the same evening yet another attack was made back in the Bir Mukheisin area. On 6th July the enemy southern thrust reached Qaret

⁸ The war diary of the *Africa Corps* at this time gives continual if gloomy acknowledgment of the success of air attacks: "The continual raids by day and night are hindering the troops seriously . . . continuous bombing raids met with success and the supply columns were blown up." "The supply situation has become even worse: the most serious shortage is that of ammunition." Entries during 2 and 3 Jul.

⁹ Sqn Ldr D. H. McBurnie, DFC, DFM, 402523. 229 Sqn RAF, 450 and 451 Sqns; comd 238 Sqn RAF 1944. Clerk; of Quirindi, NSW; b. Lakemba, NSW, 6 Apr 1920.

¹ Troop reinforcements became a first priority for the German air transport fleet, which at this time totalled 150 Ju-52's and 10 BV-222's. During the 3 months of Jul, Aug and Sep approximately 46,000 men and 4,000 tons of supplies were transported. The maximum number carried in any one day was 1,000; an average of 750 per day was maintained for a long period.

el Himeimat but was then withdrawn to defensive positions on the El Taqa plateau. The Kittyhawks returned six times on that day to their profitable raids on targets in the Deir el Shein-Ruweisat base area² and made four attacks on enemy landing grounds west of Daba and at Ghazal. With the ground struggle dying away the R.A.A.F. could raise its eyes from the immediate battlefield and revert to its own objectives. One airfield in the Daba area had already been attacked by the R.A.A.F. squadrons on 5th July and the attacks the following day did much to prevent the German Air Force from using forward bases from which it might have given Rommel tactical support.

During this first Battle of El Alamein (1st-6th July) the Australian squadrons of No. 239 Wing recorded 339 sorties, approximately 12½ per cent of the whole fighter effort and 50 per cent of the fighter-bomber operations for which they were almost entirely reserved. Though required to fight if occasion demanded, and especially when escorting bombers, their actual importance and experience at this time was repeated bombing of any target of opportunity found in the rear of the enemy front line. This work, though hazardous and intensive, gave no special opportunity for individual distinction but played its part in safeguarding the Alamein line from collapse before it could be properly fortified. None of the light bombers escorted during this period was lost through enemy attack, and though three Kittyhawks were shot down and two damaged in air actions and a further one lost and five damaged by ground fire, this was a small enough price to pay for the untiring and unselfish work of both air and ground crews.

At the same time Australians were engaged at an operational level in every respect of R.A.F. commitments in the Middle East, though not in the same intensity as in No. 239 Wing. Twelve R.A.A.F. pilots accompanied the first two Spitfire squadrons (Nos. 145 and 92 Squadrons R.A.F.) which appeared in the Western Desert early in June, and Sergeant Mahady³ secured the first Australian success when he shot down an enemy aircraft on 16th June. Of the men scattered among all the other fighter squadrons probably the most prominent was Flight Lieutenant Foskett⁴ whose long experience of Hurricane aircraft made him a skilful and enterprising leader of many patrols of No. 80 Squadron. Again, although most Australians had disappeared with the transfer of four Blenheim squadrons to India early in 1942, representation remained very high on No. 14 Squadron. The Blenheims were proving obsolescent for daylight bombing and were used chiefly for night attacks against enemy airfields on Crete. Altogether more than fifty Australians operated during this period with No. 14 Squadron. There were very few located in the South African

² *Panzer Army Africa* issued an order that the large concentration of vehicles in this area were to be withdrawn and dispersed to the west of Deir el Abyad as a result of recurrent attacks.

³ F-Lt M. J. Mahady, 403003. 122 and 145 Sqns RAF. Farmer and grazier; of Delungra, NSW; b. Inverell, NSW, 13 Feb 1920.

⁴ Sqn Ldr R. G. Foskett, OBE, DFC, 402652. 80 Sqn RAF, comd 94 Sqn RAF 1943-44. Clerk; of Roseville, NSW; b. Sydney, 7 May 1917. Killed in action 31 Oct 1944.

Boston squadrons which performed the bulk of the light-bomber operations, although when No. 223 (Baltimore) Squadron came back into the line on 23rd June another fifteen R.A.A.F. men joined in the battering of Rommel's columns advancing into Egypt.

Australians also began to appear in increasing numbers on R.A.F. transport units, especially No. 117 which carried freight, mail and passengers to India, Syria, Palestine, Western Desert and Malta. No. 1 Air Ambulance Unit continued to experience incessant delays and misfortunes, for it was inoperative from mid-February until 29th April when one of its DH-86 ambulances was able to resume operations and carried thirty-seven patients before the enemy offensive began on 27th May. Flying Officer Duffield⁵ persevered and the one ambulance made daily trips to Gambut, removing 114 wounded before 15th June when it had to retire to Burg el Arab. A second DH-86 was secured on 18th June but crashed on its first take off, and in the confusion of the latter part of the month, while the unit withdrew successively to Wadi Natrun and Heliopolis, only twenty-two more patients were carried. More fortunate were Australians performing photographic reconnaissance with No. 1437 Flight R.A.F. which had also begun operations hampered by deficiencies in aircraft, crews, training and even flying kit. Sergeants Cashmore⁶ and Welshman⁷ did consistently good work, and Welshman was especially commended by General Ritchie⁸ when on 3rd March, although his aircraft was hit by gun fire, and he engaged in a running fight for thirty-five minutes with six Me-109's, he patiently performed a reconnaissance of the Msus-Benina-Benghazi areas. One further specialised unit deserving mention because of its strong quota of Australians was No. 8 (Blenheim-IV) Squadron based at Aden and responsible for the security of shipping approaching the "back door to the Western Desert". All except two sorties made during May 1942 were performed by R.A.A.F. captains.

The greatest number of Australians was still to be found at this time divided among the Wellington medium-bomber squadrons whose work conformed to a fairly regular pattern. From static bases in the Canal zone they moved up to advanced landing grounds from which the Libyan ports and targets in Crete, Greece and the Dodecanese Islands could be reached. When the army's front line was well forward the Wellingtons could bomb Tripoli, but otherwise Benghazi became the main target until with the loss of Fuka in June 1942 even that port was unattainable and

⁵ F-Lt A. J. R. Duffield, 251431, 1 AAU, 36 and 38 Sqn. Commercial pilot; of Abbotsford, Vic; b. Melbourne, 20 Oct 1914.

⁶ Sqn Ldr V. Cashmore, DFC, 407165. Habbaniya Air Striking Force RAF Iraq; 113 Sqn RAF, 21 Sqn SAAF, 1437 Strategic Reco Flight RAF, 454 Sqn. Student; of Pt Pirie, SA; b. Adelaide, 3 Sep 1919.

⁷ Sqn Ldr S. G. Welshman, DFM, 402554, 223 Sqn RAF; comd 1437 and 1438 Strategic Reco Flights RAF, and 450 Sqn 1943. Manufacturer; of New Lambton, NSW; b. Gloucester, Eng, 22 Jan 1916. Killed in action 1 Dec 1943.

⁸ "I will be grateful if you will pass on to F/Sgt Welshman and his crew my very great admiration of their reconnaissance, carried out under the most difficult conditions, of enemy positions on the 3rd of March. I think it is a first class instance of courage and devotion to duty, and in the course of the reconnaissance information has been gained which is of great value to the army as a whole." (Gen Sir Neil Ritchie, KCB, KBE, DSO, MC. BGS BEF 1939-40; GOC 51 Div 1940-41; Dep C of S ME 1941; comd Eighth Army 1941-42; GOC 52 Div 1942-43, XII Corps 1944-45; b. 29 Jul 1897.)

the medium bombers concentrated on Tobruk. During the emergency period of the retreat to El Alamein, however, No. 205 Group was thrown into the main battle. Every night the Wellingtons flew over assembly areas in the enemy rear attacking any targets illuminated by flares from naval Albacores. The normal load was seventeen 250-lb rod-bombs,⁹ sometimes dropped singly and sometimes in groups according to the individual captain's estimate of a target's importance. This work was hazardous as many pilots came down low to make sure of hits, but it was popular as "it made the air crew feel they were really assisting directly in the war".¹

A typical early operation of this nature occurred on 25th-26th June when fourteen Wellingtons of No. 70 Squadron bombed and then machine-gunned a badly-dispersed enemy column advancing between Sidi Barrani and Mersa Matruh. Pilot Officer Howes,² the navigator of one of these Wellingtons, showed great resource and coolness after his aircraft had been badly damaged by a night fighter. Howes assisted the second pilot and wireless operator who had been wounded, went aft to extinguish a fire and extricated the badly-wounded rear gunner, whose leg was severed and clothing ablaze, from his shattered turret.

The presence during this period of nearly 200 R.A.A.F. members of aircrew on Wellington squadrons emphasised that the days of improvisation in the Middle East were by no means over, for there was at the same time, nominally based in the Command, an R.A.A.F. Wellington squadron which could not be put on an operational footing. In January 1942 No. 458 Squadron R.A.A.F. had been withdrawn from Bomber Command to transfer to the Middle East.³ The ground staff members, of whom approximately 50 per cent were Australians, went by sea, and thirty-two Wellingtons were to be ferried out in two groups of sixteen, each crew making two trips. The commanding officer, Wing Commander Mulholland, was shot down near Malta on the initial flight, and then considerable delay occurred in arrangements to return aircrews to England for the second ferrying trip. Thus when the maintenance and administrative personnel arrived at Suez on 26th May aboard *Mataroa* and *Mendoza* they found no aircrews awaiting them, and the Wellingtons already delivered had been issued to existing hard-pressed squadrons.⁴ An unexpected opportunity soon arose for these stranded ground crews, some of whom were lent on 2nd June to service Liberators of the Halverson Detachment U.S.A.A.F., and a further large party of 110 under the squadron engineering officer also joining the Halverson Detachment at Lydda on 29th June. Other crews serviced the aircraft of Nos. 159, 147 and 108 Squad-

⁹ "Rod-bombs" were normal 250-lb GP bombs with an extension rod fitted to the nose fuse. The bombs thus exploded before burying themselves and this greatly increased the blast effect from near misses among vehicle concentrations.

¹ Operations Record Book, 70 Sqn RAF.

² F-Lt T. E. W. Howes, DFC, 404900. 70 and 104 Sqn RAF. Airline freight off; of Toowong, Qld; b. Brisbane, 8 Aug 1922.

³ Originally it was destined for Burma, but AOC, OHQ, RAAF successfully objected to the proposed transfer to this theatre of war.

⁴ This accords with Tedder's axiom that it was easier to build up existing sqns than attempt to introduce inexperienced ones during moments of stress.

rons R.A.F. and some ninety men under Squadron Leader Saville⁵ remained at Fayid as a refuelling and re-arming party. Early in July, due to withdrawal of heavy bombers to Palestine, the ground detachments of No. 458 were at Fayid, St Jean (No. 159 Squadron) and Lydda. The aircrews arriving in Egypt on their second flight were posted as urgent replacements to Nos. 104, 108 and 148 Squadrons at Kabrit and Nos. 37 and 70 at Abu Sueir.

Meanwhile No. 451 Squadron R.A.A.F., withdrawn from the Western Desert after the capture of Halfaya in February 1942, was based at Haifa in Palestine. Middle East Command was over supplied with army-cooperation squadrons, which in any case were becoming redundant with the emergence of No. 239 Wing as a pattern for reconnaissance-strike spearheads to give effective air support to armies. Because of earlier misunderstandings there was, however, reluctance to discuss with the Australian Air Board any change in the role of this squadron. The main body thus remained at Haifa cooperating with the anti-aircraft defences of Tripoli, Rayak, Larnaca and Famagusta, and joining in tactical exercises with the 2nd New Zealand Division. One flight of the squadron went to Cyprus to cooperate with the troops, and it was hoped that these Hurricanes would be reported by enemy agents and photographic-reconnaissance planes as a fighter squadron. Neither as an insurance policy for the Levant nor as a scarecrow on Cyprus were the Australians satisfied, however, for in comparative idleness this squadron suffered the disquieting news of Allied reverses in the Pacific. Certainly by June dissatisfaction was being expressed that while other army-cooperation squadrons were assuming an offensive role, No. 451 should remain in a quiet sector.⁶ The airmen felt that as they already had experience of desert conditions they could be attached without difficulty to No. 239 Wing which would thus become even more Australian in character. However, there was no one to heed these natural desires for action, because no liaison office yet existed in Cairo, and by mid-June the unfavourable situation in Egypt gave Middle East Command no time to satisfy personal or national desires. As no further aircraft could be spared from the Western Desert, No. 451 was ordered to undertake the fighter defence of Haifa, and it was clear that for the remainder of the emergency period it would not move up into the front line. This disposition, valuable in itself, left No. 451 suitably placed to guard against any German thrust through the Caucasus, but, when the threatened dangers did not eventuate, the Australians' feeling of being "forgotten men" deepened. The Air Board, remote from these circumstances and pre-occupied with events in the Pacific, took no action either to reassure the men concerning the worth of their employment, or to request a change. The comparatively simple and practical plan of grouping Nos. 3, 450 and 451 into one wing was not adopted, while Australian policy pursued the chimera of a national force created from all the scattered Australians.

⁵ W Cdr D. T. Saville, DSO, DFC, 74738 RAF, 12 Sqn RAF, 458 Sqn, 104 Sqn RAF; comd 218 Sqn RAF 1943. Mechanical engineer; of Sydney; b. Portland, NSW, 22 Dec 1903. Killed in action 25 Jul 1943.

⁶ 6 Sqn RAF, which had played a part in 451's own history, had become a tank-buster sqn.

During the first week in July while the Eighth Army was striving to hold the enemy at El Alamein, Malta had to face a renewed offensive. The night raids and fighter sweeps characteristic of June gave way to more intensive daylight attacks by formations of Ju-88's, Cant 1007's and Re-2001's heavily escorted by Me-109's and Macchi 202's. The Spitfires, however, intercepted most of these raids well to the north of Malta. Many bombs were jettisoned harmlessly in the sea, and almost a hundred German or Italian aircraft were destroyed during the first week in July. The attempt to subdue Malta by bombing was again abandoned in favour of high-flying fighter sweeps by day which kept the defences active but which could effect little material damage. While the brief full-scale battle raged, Yarra, Brennan, Goldsmith, Reid and Parkinson all added to their previous successes. Sergeant Mahar⁷ of No. 185 Squadron R.A.F. also achieved prominence at this time; and Pilot Officer Smith⁸ (No. 126) whose operational career at Malta was confined to the first eight days of July, shot down three enemy aircraft.

Smith's last flight illustrates the severity of opposition met by the Spitfires and the significance of their victory. On 8th July he and three others were sent into the air at 11 a.m. to meet a force of more than twenty Ju-88's escorted by fighters. When the Spitfires intercepted this force the bombers were still over the sea, but were turning in at a height of 15,000 feet to bomb Luqa airfield. Smith dived straight past the enemy rearguard of four Me-109's and opened fire on one of the Ju-88's which spiralled down into the sea. He himself was now beset by the Messerschmitts and his Spitfire was hit eight times. One shell damaged his radio-telephone and severed two control wires so that the aircraft shot upwards out of control. Smith had suffered a painful ankle wound with a severed artery, but by employing the auxiliary elevator trim controls he brought his machine back on an even keel. He was now alone in a badly-damaged aircraft and could not call for help, but he decided not to bale out but to fight his way home. Two of the Messerschmitts had descended and were circling the crashed bomber, but the other two turned to attack the Spitfire. Smith waited until they were committed to an attack, and he then executed a very tight turn which brought him on to the tail of the rearmost enemy. At a distance of 100 yards he pressed his triggers but his guns did not fire. The air lines to the control column had been severed. By this time he was fifteen miles from Malta, but, keeping the two fighters always in front, he slowly manoeuvred towards the island. When still a few miles away the enemy fighters broke away and approached astern. Using his uninjured leg Smith sent his Spitfire skidding down towards the sea every time they approached, thus spoiling their aim. At length he reached the coastline and the Messerschmitts withdrew. Smith made a well-judged landing without the aid of flaps, and, as he attempted to climb out of his aircraft, fell unconscious.

⁷ F-Lt E. L. Mahar, DFM, 33231. 131 and 185 Sqns RAF, 452 Sqn. Farmer; of Kerang, Vic; b. Kerang, 15 Sep 1916.

⁸ W Cdr D. H. Smith, DFC, 407256. 452 Sqn, 126 and 41 Sqns RAF; comd 453 Sqn 1944, 11 PDRC 1945. Farmer; of Encounter Bay, SA; b. Encounter Bay, 18 Aug 1915.

This grim determination animated in some measure all the pilots, who, poorly fed and provisioned, rose from their beds at 3.15 a.m. and from dawn to dusk maintained a constant state of readiness at their airfields. Even their short nights were not free from the strain of enemy bombing, but the arrival late in June of a detachment of No. 89 Squadron of night fighters, brought some relief to Malta. Pilot Officer Ross⁹ on 1st July heavily damaged a Ju-88 which in a shower of red flashes apparently fell into the sea. Pilot Officer Shipard¹ certainly destroyed a Ju-88 on 7th-8th July and later in the month he shot down two more. These night fighters suffered from enemy jamming of their radio and radar-interception aids, but their influence was still sufficient to deter mass raids, so that day and night air defence of Malta was reasonably assured by the end of July.

Although rebuffed both at Malta and at El Alamein during the first week in July, German confidence in complete victory in the Middle East was undimmed. Without reference either to the Italians or to his own naval command, Hitler postponed the plan for the capture of Malta until the conquest of Egypt was completed. Germany thus began to gamble on provisioning an army 1,200 miles from Italian supply bases and lying over 300 miles ahead of its nearest major port in Cyrenaica.² This decision produced a sharp reaction within the opposing air forces. Kesselring was forced to divert more and more aircraft, even operational bombers, to his air transport fleet, and was led to remark that he was nothing more than a glorified quartermaster. His limited supplies of aviation fuel were moreover greatly diminished by this means, so that his fighting units, even when they could be established on forward fields in Egypt, were unable to operate at full efficiency. Rommel became increasingly critical of the aid given to his troops by close-support air units and his relations with Kesselring rapidly deteriorated at a time when only complete harmony would have solved logistical problems. The Royal Air Force on the other hand reacted promptly against this paramount weakness in the enemy position. At Malta and in Egypt the torpedo-strike squadrons were reinforced and they began systematic attacks, in conjunction with friendly submarines, against enemy shipping throughout the eastern Mediterranean. Already on 29th-30th June Sergeant Brigg³ of No. 38 had achieved a

⁹ Sqn Ldr J. MacK. Ross, 402138. 68 and 89 Sqns RAF. Clerk; of Gunnedah, NSW; b. Gunnedah, 4 Dec 1919.

¹ F-Lt M. C. Shipard, DFC, 402257. 68 and 89 Sqns RAF. Clerk; of Henty, NSW; b. Albury, NSW, 24 Jul 1917.

² The blind concentration of Hitler and the German Supreme Command on purely "continental" military theories was consistently deplored by the naval leaders who could not even secure adequate oil supplies so that the Italian Navy could help in protecting the vital sea supply routes. Vice-Adm Weichold describes the position in early Jul 1942 thus: "After the failure of the Egyptian offensive, the general situation in the Mediterranean was even worse than when it began at the end of June, in fact it was even more dangerous than at the beginning of the Cyrenaica offensive at the end of May. Then the German-Italian army was occupying good positions, with ports near to the front-line, with the possibility of employing the German Air Force in the protection of shipping routes, in addition to their support of the ground forces. All in all a position which, while promising no great results or prospects, guarded against any serious danger. The chance of the great offensive had now passed, the army stood deep in enemy territory without secure land and sea supply communications, and the available lorries and ships were not equal to it." Essay on "The War at Sea in the Mediterranean" (1945).

³ F-Lt G. B. Brigg, DFM, 407520; 38 Sqn RAF. Treasurer; of Adelaide; b. Hornsby, NSW, 13 Aug 1916.

torpedo hit amidships on an enemy vessel attacked three miles off shore some twenty-five miles east of Tobruk. The following night five Wellingtons of the same squadron, this time operating from Malta homed by radar on to a convoy of three freighters and five destroyers steaming south-eastwards from Taranto. Sergeant Flanagan⁴ scored one of the two torpedo hits which led to this vessel being assessed as "severely damaged". Australians took part in nine further searches for shipping during July, with disappointing results, the convoys not being located on four occasions, smoke screens preventing attack on two, and no positive hits being observed on the three occasions torpedoes were launched. Ships which successfully reached Cyrenaican ports were repeatedly bombed—at Benghazi by Halifaxes, on loan from the United Kingdom, and Liberators; and at Tobruk by the Wellingtons of No. 205 Group which were released from the land battle on 7th July. Even the supplies which cleared the ports had to face a long road haul up to the front line under continual danger of attack from light bombers, and farther forward from fighter-bombers. This strategic task of systematically throttling the supplies of the *Panzer Army Africa* remained the prime task of R.A.F. units throughout the late summer of 1942 except when the needs of the Eighth Army in attack or defence necessitated a temporary return to tactical ground support.

The Australians in No. 239 Wing continued to bomb enemy strong-points and columns as often as conditions permitted. The area between Bir Mukheisin and El Ruweisat remained profitable, and on 7th July eighty-four bombs were dropped there by Nos. 3 and 450, and on 9th July a further seventy-seven. To counter the increasingly effective dispersal arrangements, approximately half the R.A.A.F. Kittyhawks were now carrying a 500-lb bomb. On 10th July an early-morning armed scouting patrol of No. 3 dropped ten bombs on enemy gun emplacements in front of the 9th Australian Division as they moved up to attack Tel el Eisa, but the squadrons were then rested until 13th July when they were again thrown in against Rommel's counter-attack against El Alamein.

The concentration of the *21st Panzer Division* north of Deir el Mireir had not passed unnoticed and full advantage was taken by the fighter-bombers throughout the day, No. 3 flying forty-three sorties and No. 450 twenty-five. The enemy thrust had been repulsed by that evening, and Auchinleck decided to counter-attack not only along the Ruweisat Ridge against the *Brescia* and *Pavia Divisions*, but also in the south where the *90th Light Division* was probing forward between Bab el Qattara and the El Taqa plateau. Accordingly, during the morning of 14th July, the Australians flew a further twenty-six sorties against the central sector and then attacked mechanised columns north of El Taqa during the afternoon. Targets in the triangle of desert tracks south of Jebel Kalakh had some attention from No. 239 Wing on 15th July, but the main weight

⁴ W-O R. V. Flanagan, 400273. 9 and 38 Sqns RAF. Surveyor's assistant; of Brighton, Vic; b. Nazareth, Palestine, 4 May 1921.

of attack swung once more to the Mireir-Mukheisin base sector, especially on 16th July when the R.A.A.F. squadrons flew 87 out of a total of 161 fighter-bomber missions.⁵ The ground fighting again died away with neither side gaining any advantage, but Australian air activity continued at a lower rate until 21st July when Auchinleck again launched an evening attack in the central (Ruweisat) sector against the *15th Panzer Division*. The light and medium bombers attacked throughout the night and on 22nd July the Bostons made joint attacks with the Kittyhawks, which also sought out targets of opportunity.⁶ Despite initial successes this offensive failed, as did another launched southwards from Tel el Eisa during the night of 26th-27th July in the hope of rolling up the enemy line from the north. It was now apparent that neither army had the resources to engage in a full-scale offensive and both sides prepared for a period of static defence. However, the fighter-bomber force continued to attack vehicles and gun emplacements until 2nd August.

During the four weeks following 6th July Nos. 3 and 450 flew 877 sorties in direct support of land operations. Losses were not unduly heavy, only one pilot (of No. 450) being shot down in aerial combat and three by ground fire while Sergeant Neill⁷ of No. 3 Squadron destroyed an Me-109 on 14th July and another was probably destroyed in a confused mêlée on 27th July. This month was marked also by a continuation of the attacks on enemy airfields intended to grind away the serviceability and striking power of the German Air Force. Raids by Kittyhawk-bombers recommenced on 8th July and continued until 13th July, when enemy anti-aircraft fire forced a change in tactics. The airfields were then attacked at night by Wellingtons and Bostons, supported on occasion by early-morning fighter-bomber raids. Of 199 Kittyhawk sorties between 7th and 24th July the R.A.A.F. squadrons provided 118, joining in six out of seven attacks. Almost all the attacks were effective, and the degree of participation of the enemy air units in the battle fell away sharply. Some enemy units were withdrawn west of Daba, and those remaining staged only an average of sixty fighter sorties each day, in vivid contrast to the ever-mounting assaults of the R.A.F. This success cost each of the Australian squadrons one Kittyhawk; and on 20th July Wing Commander Mayers was also shot down and killed by ground fire.

There has been no real test for either the ground or air crews of No. 239 Wing since the enemy offensive began at Gazala on 26th May. The R.A.A.F. squadrons alone had lost twenty-four pilots, and many of the replacements needed schooling in the technique of fighter-bomber work without the constant pressure of operations. On 2nd August, with the land fighting completely defensive and the *Luftwaffe* repulsed, No. 239

⁵ *Africa Corps Battle Headquarters* was twice bombed during the early afternoon and among other vehicles damaged was the car in which Rommel was sitting until the air attack commenced. *Africa Corps diary*.

⁶ Besides dispersal, Rommel had by now ordered sand-bag and blast-proof bays to be built to protect vehicles in vital areas.

⁷ P-O G. A. Neill, DFM, 404773, 122 Sqn RAF, 3 Sqn. Clerk; of Brisbane; b. Brisbane, 2 Dec 1921. Killed in action 22 Oct 1942.

Wing was accordingly withdrawn from the line for rest and retraining. In other directions, however, Middle East Command exerted all its powers to hinder enemy preparations for any new offensive. By 14th August the air strength of Malta had risen to 145 Spitfires and 109 strike and reconnaissance aircraft to support another attempt to run a convoy from Gibraltar. Only five out of fourteen merchant ships arrived safely, but these included a tanker and, for the first time in many months, it was practicable to wage an air offensive in the central Mediterranean. The Spitfires began to mount Rodeo, Circus and Rhubarb raids over Sicily, and night fighters were increasingly employed as intruders over enemy airfields. As local air supremacy was extended over a wider and wider area the torpedo bombers and reconnaissance aircraft forced the Germans to route their convoys once more via Crete, which exposed them to attack from Egypt.

At the same time in the eastern Mediterranean a new offensive was launched against coastal traffic between Tobruk and Mersa Matruh by which the enemy was trying to bring supplies forward and thus save wear and tear of trucks on the long land route; there were already insufficient lorries to bring forward the full needs of the panzer armies, and the continual attrition of the fighter-bomber operations inevitably aggravated the problem. Thus when, in July, a considerable number of "F-boats" (tank landing craft) began to use this route, Beaufighters, Bisleys, Swordfish and Albacores were employed against them. Early results were disappointing so Tedder decided to employ the Hudsons of No. 459 Squadron, which moved up from Abu Sueir to Idku on 20th July.

Since 16th June when it had completed its task in connection with the attempt to run a convoy to Malta, Hennock and his crews of No. 459 had flown fifty-nine sorties, mainly anti-submarine sweeps north of the Delta area, and night searches for enemy coastal shipping. They had joined in the pell-mell retreat from the Western Desert and were now very eager to assume an offensive rather than a defensive role. The first two experimental searches, however, made with an escort of Beaufighters in daylight, failed to discover any targets. On the third occasion six Hudsons went out together but by mischance fell in with Me-110's escorting a large formation of Ju-52 transport aircraft from Crete to Tobruk; one Hudson was shot down and again no F-boats were sighted. On 28th July, however, the first success was achieved when two of these vessels were discovered west of Sidi Barrani. Four Hudsons attacked with depth-charges after diving from 800 feet almost to deck level and one of the F-boats was subsequently beached. One Hudson was shot down and another damaged by gun fire,⁸ however, and it was obviously necessary to find a more economical method of attack. Accordingly on 2nd August four Hudsons were sent out singly each carrying ten 100-lb bombs instead of depth-charges. Three saw no targets but at 6 a.m. Rose (formerly of

⁸ Each F-boat mounted a standard armament of one 75-mm and two 20-mm guns, but fire was often experienced from improvised machine-gun positions.

No. 450 Squadron) scored three direct hits and sank an F-boat on which he dived without warning.

With minor modifications this method was used in all subsequent attacks, the Hudsons taking off by night with sufficient time to search by radar, locate a target before dawn and attack from the dark side in the first few minutes of half light preceding the dawn. In eighty-five sorties between 1st and 17th August Hudsons of No. 459 sank twelve of the sixteen F-boats destroyed before the Germans were forced to withdraw them from the Matruh route. Four more Hudsons were lost during these low-level attacks. Others reached base heavily damaged, as on 10th August when Pilot Officer O'Brien⁹ after scoring a number of direct bomb hits on an F-boat found his port motor on fire, his aerial shot away, and his Hudson holed in many places. His crew extinguished the fire but the aircraft would not maintain height until everything movable—guns, ammunition, pyrotechnics and even navigational gear—had been jettisoned. O'Brien was then able to nurse the Hudson over the 250 miles to its airfield.

With the Tobruk-Matruh line effectively cut No. 459 reverted to anti-submarine patrols and searches for enemy convoys which were expected to rush trucks and petrol supplies to North Africa in time for a German offensive to come at the end of the month. At Malta Australian pilots of No. 39 flew in formations which torpedoed a large tanker near Paxoi Island on 21st August and sank the motor vessel *Istria* (5,416 tons) north of Benghazi on 27th August.¹ Other R.A.A.F. pilots of No. 38 shared in the sinking of three more merchant ships and a tanker between 27th August and 4th September, though it is impossible to establish which of the torpedoes launched actually found their mark, and in two cases the sinking was also aided by Liberator bombers. Submarines of the Royal Navy also sank five ships in the central Mediterranean during August, with the result that of 114,000 tons of shipping dispatched to Cyrenaica, some 38,000 tons were sunk and 2,000 damaged.

During the absence of No. 239 Wing from the desert, the Eighth Army had taken up very strong defensive positions in expectation of a German attack at the end of August. The Kittyhawks were held in reserve for the impending battle, and, between 20th and 30th August, Nos. 3 and 450 flew only 169 sorties, of which 127 were low-level bombing attacks in the southern sector. On 29th August three engagements with Me-109's caused the loss of two Kittyhawks of No. 450. Enemy bombers from Crete had now begun night attacks on fighter airfields at Amiriyah and Wadi Natrun though with little success. Then, on the night of 30th-31st August, Rommel pushed forward between Qaret el Himeimat and Deir el Munassib. The lesson of June had been well learned, however, and General Montgomery²

⁹ F-O V. K. O'Brien, DFC, 400936. 500 Sqn RAF, 459 Sqn. Schoolmaster; of Canterbury, Vic; b. Ringwood, Vic, 2 Jan 1912. Killed in action 9 Dec 1942.

¹ *Istria* carried a main cargo of vehicles for *Artillery Commander 104* and the *Ramcke Paratroop Brigade* as well as fuel for the *Panzer Army*. War diary of *Panzer Army Africa*, entry of 28 Aug.

² Field Marshal Viscount Montgomery, KG, GCB, DSO. GOC 3 Div 1939-40, V Corps 1940, XII Corps 1941, Eighth Army 1942-43, 21 Army Gp 1944-45; CIGS War Office 1946-48; b. 17 Nov

had no intention of throwing his tanks prematurely against superior German guns. Instead the *Africa Corps* was forced to attempt a frontal attack against well-defended positions. In concentrating to make such a thrust it offered an ideal target for the R.A.F. The familiar pattern of night attack by medium bombers and day attack by light bombers was instantly achieved and continued without pause until 4th September when the frustrated enemy withdrew through the minefields to his original positions. German air units made strenuous attempts to intervene, but they averaged only ninety-five bomber and 220 fighter sorties each day, and enemy formations were frequently scattered by the Hurricane and Spitfire offensive patrols maintained by the R.A.F. On 31st August and 1st September Foskett (No. 80) led two successful attacks on Stuka formations, while Sergeant Le Poer-Trench³ (No. 127) shared in the destruction of six more Ju-87's on 2nd September. As a further precaution, No. 239 Wing was confined to purely fighter duties, and the R.A.A.F. squadrons flew 175 of their 221 sorties as fighter escorts to the light-bomber formations, which flew with awe-inspiring regularity whenever dust and the fighter position permitted. The remaining forty-six flights were to intercept enemy formations, two Me-109's being claimed as destroyed and a further four probably destroyed. No Kittyhawks were lost though three were damaged and the pilots wounded, but perhaps most satisfactory of all from the Australian viewpoint was that on all occasions they prevented any attack on the bombers.

The events of August, culminating in Rommel's abortive offensive, have been described very briefly above. They are perhaps brought into better focus by reference to the war diary of the *Panzer Army Africa*, which is full of comment on the air and supply situations.

On 1st August:

The C-in-C conferred with Fliegerfuhrer Africa.⁴ The C-in-C stressed the necessity of protecting coastal shipping. However, Fliegerfuhrer Africa is fully committed by operations at the front.

And the same day made a report to the German High Command:

Supplies at the present time are sufficient to cover only the day-to-day requirements of the troops. Stock-piling for large-scale actions or even offensives is impossible. Reasons:

- (1) Prevention of coastal shipping from Tobruk to the east by enemy air force and navy
- (2) Inadequate shipping space
- (3) Limited facilities for unloading in Tobruk
- (4) The establishment of regulated railway traffic . . . is not in sight.
- (5) Lack of transport vehicles.

Rommel made official requests (2nd and 7th August) for more fighters and anti-aircraft guns to defend Tobruk and Mersa Matruh. At the same

1887. Early in Aug Gen Alexander had succeeded Gen Auchinleck as C-in-C ME and Gen Montgomery was appointed to command the Eighth Army.

³ F-Lt F. A. Le Poer-Trench, 404974. 124 and 127 Sqns RAF. Articled law clerk; of Lismore, NSW; b. Lismore, 29 Jun 1921.

⁴ Lt-Gen Hoffman von Waldau.

time he railed against inadequate arrangements for unloading ships and the apparent unfair proportion of supplies brought over for Italians in rear areas and Germans in the front line:

For weeks the German forces have had to bear the brunt of the fighting in the North African theatre almost alone. Nor will this position be changed in future operations. It is therefore insupportable that Italian formations should be replenished to a disproportionately greater extent than the German forces and that a new Italian division should be transported, while not one of the urgently needed German spare vehicles has yet arrived in Africa.

On the 7th he wrote to General Gause in Rome that:

your most important task, therefore, is to make Cavallero agree to a fair division of shipping space. New Italian divisions are no use to me here, especially those with no battle experience, like the Pistoia Division. I need German soldiers and German materials as it is only with these in the long run that I must launch the offensive

On the 14th Rommel wrote that:

I cannot possibly agree to order of QMG/C-in-C South allocating two-fifths of transport space to Luftwaffe and including 5,000 Italians in German Army quota. It does not take into account the seriousness of the ground situation in North Africa

During this first half of August Rommel was well aware of his own weakness, temporarily perturbed by the news of the convoy eastbound from Gibraltar, which he feared might "arrive off Tobruk during the night of 13-14 August", and sensitive to repeated air attacks and the possibility of commando raids behind his lines such as occurred at El Daba on 14th-15th August. Typically, in the knowledge that British strength would continue to grow, he made, on 15th August, an "Assessment of the situation and the state of Panzer Army Africa" and determined to launch an offensive during the moon period commencing on the 26th to destroy the El Alamein positions before it was too late. In this assessment his view of the air situation was:

In recent weeks the activities of the strong and also much superior enemy air force have been directed mainly against the German Army's supply system, against shipping, a vital factor in German supply, and against the ground organisation of the *Luftwaffe*. It must be expected, especially in view of the growing scale of American assistance, that the RAF will also be steadily reinforced during September

This decision having been made, a conference followed on 18th August, between Rommel, Marshal Cavallero, Field Marshal Kesselring, General von Rintelen and Marshal Barbasetti, about making supplies available for the offensive. Rommel reiterated his demands, but was met by only general assurances of redistribution, although Kesselring promised to transport anti-tank guns by air for the *164th Infantry Division*, at the expense of other supplies.⁵ Rommel pointed out that he was willing to accept up to two days postponement of his attack, but that the total fuel stocks then

⁵ When Rommel first reached El Alamein he had asked for *164 Inf Div* and the *Ramcke Paratroop Bde* from the Balkans-Crete area. The personnel had been arriving by air, but transport of heavy equipment had been greatly impeded by the loss of the *Pisani*, *Delos* and *Citta di Agrigento*, three of the ships chartered for the transfer.

in Africa (3,000 cubic metres) would meet only normal consumption until 26th August and that there was none for the offensive.

Conferences and hand-to-mouth supply measures continued throughout the following week, while army units were being prepared for their precise tasks. The tanker *Pozarica* was torpedoed near Corfu on the evening of 21st August but the *Fascio* and *Pukliola* arrived at Tobruk on the 23rd with 1,140 cubic metres of fuel, 200 tons of ammunition and other supplies. On the 22nd, however, Rommel had warned von Rintelen that unless he was assured of 2,000 cubic metres of fuel and 500 tons of ammunition by the 25th, a further 2,000 cubic metres of fuel by the 27th, and yet another 3,600 cubic metres of fuel and 2,000 tons of ammunition by the 30th he could not proceed:

If these requirements cannot be met it is useless to think of carrying out the project at the time proposed. The operation, which was planned on the assumption that the favourable period of the full moon would be used, will then have to be postponed and replanned on a different basis.

Planning continued, however, and on the 25th the air forces were given their orders to provide continuous fighter patrols on the day preceding the offensive, to prevent British reconnaissance over the assembly areas; nuisance night raids along the Burg el Arab-Alamein road; continuous fighter cover over motorised formations during the battle; and fighter-bomber attacks against British units. On the 26th, however, when the attack was to begin, Rommel informed the *Africa Corps* and the Italian *XX Motorised Corps* that "in view of the fuel situation" the planned redeployments would not take place for at least twenty-four hours.

The whole venture was thus in jeopardy. Already on the 24th Rommel had ordered every available unit vehicle to the rear army area to load supplies and to return by the 28th. Five hundred cubic metres of the fuel brought by the *Fascio* was reluctantly lent to the Italians to make similar emergency restocking of the front line. On the 28th came news of the sinking of the *Istria* on the preceding day, and, although on the 29th Kesselring promised that all available transport aircraft would be diverted to bring ammunition from Italy, Rommel finally decided to limit his objective.

The fact that the quantities of fuel and ammunition, requisitioned and promised as essential preliminaries to the planned operation, have failed to arrive means that it will not be possible to undertake more than a limited local operation, with the object of hitting the enemy forces in the Alamein position.

On 30th August Kesselring made available 1,500 tons⁶ of fuel from *Luftwaffe* stocks and the *Gualdi* arrived during the morning at Tobruk with another 800 tons. With this slender backing the attack began at 10 p.m. (German time). Affairs went far from well, however, and during the night General von Bismarck was killed by a mine and General Nehring, commanding the *Africa Corps*, was wounded in a bombing attack. The

⁶ "Tons" as in translation although cubic metres are the normal units mentioned. In any case these acquisitions would do little except meet minimum needs.

motorised formations were badly hindered by undiscovered minefields and lost the element of surprise upon which much hope had been placed. At this juncture Rommel had to decide whether the attack should be broken off or continued with an even more limited aim. Rommel determined to continue, and Kesselring ordered all available dive bombers to support the advance. By 6 p.m. the *Africa Corps* had made some progress, but, because the terrain was covered with deep sand, fuel consumption was extremely high and few stocks remained. "During the night (31st August-1st September) enemy aircraft were very active over the whole front: 3rd and 33rd *Reconnaissance Units* suffered heavy losses in men and equipment in waves of heavy bombing attacks . . ."

The 1st September brought no comfort to Rommel. Kesselring enabled fuel to be brought up quickly from Tobruk and Mersa Matruh by air but:

Strong enemy aircraft formations in waves made incessant attacks on motorised formations, particularly *Africa Corps*. Heavy losses were sustained in the open and to some extent stony terrain. German fighters were too weak numerically to divert the enemy formations from their objectives. Some of the escorting British fighters were shot down, but the bombers could not be approached. The ships with fuel and ammunition promised by *Commando Supremo* for 31st August and 1st September did not arrive. Consequently there are only 300 cubic metres of fuel for German troops between ports of discharge and the front. The supply of German units with an authorised maximum consumption of only 100 cubic metres per day is assured therefore only until 5th September. In view of this difficult situation, it was necessary to break off the attack temporarily and assume the defensive.

The next day proved equally unfavourable because:

The enemy resumed his non-stop bombing attacks during the night. About 12 raids were made during the day between 6.30 a.m. and 6 p.m. and these operations were continued without a break during the night from about 10 p.m. to 4.30 a.m. Owing to the lack of night fighters, troops were exposed without defence to the night attacks. Apart from the considerable losses in personnel and equipment caused by these attacks which were concentrated on *Africa Corps*, they were not without effect on the morale of the German and Italian troops . . .

In the wider scene on 2nd September:

Abruzzi, carrying 611 tons of fuel was attacked and damaged between Benghazi and Derna. This brought about a further deterioration in the *Panzer Army* fuel situation and consequently excluded any possibility of resuming the offensive for an indefinite period. The C-in-C therefore decided to withdraw troops gradually into the area east of the line El Taqa-Bab el Qattara and to go over to the defensive there, making use of the British minefields.

Subsequent fighting was concerned mainly with the extrication and regrouping of the enemy forces, and the whole front quickly lapsed into relative inactivity. Air power in conjunction with sea power had first so restricted the enemy build-up that the projected grand enemy offensive had been whittled down to a much more limited operation even before it began. During the battle further restrictions of supplies and the relentless pressure from the air had prevented even this restricted tactical aim being achieved.

CHAPTER 11

THE AIR WAR AT SEA: JANUARY TO SEPTEMBER 1942

To Coastal Command, the results of the merging of European into global war appeared temporarily to be entirely adverse. Like others now threatened by the flood tide of Japanese successes, Coastal Command had previously depended on the United States for supplies of aircraft, and these ceased to be available early in 1942 owing to the initial needs of the vast American training and operational program.¹ British responsibilities in the Indian Ocean, the Pacific and Australasia called for precisely the same general-reconnaissance and strike aircraft with which Coastal Command was already, at this stage, inadequately equipped because of substantial transfers to the Middle East late in 1941. As an initial step thirty-six Hudsons crews had been sent to the Far East in December 1941, and were to be reinforced by a further sixteen each month. Four Catalina flying-boat squadrons and two torpedo squadrons were withdrawn from Coastal Command for oversea service during the first few months of 1942, while, to provide sixteen Beaufighter crews every month for the Middle East, No. 236 (Fighter) Squadron left the line to act as a temporary operational training unit. As early as 7th January 1942 Air Chief Marshal Joubert reported to the Air Ministry that there was a deficiency of 158 crews on coastal squadrons then operating and that 75 per cent of aircrew personnel actually in squadrons had done fewer than 200 hours operational flying. At the same time, a proposal to form four additional squadrons with any available aircraft, and manned mainly with green crews now leaving coastal operational training units in larger numbers, was rejected by the Air Ministry because the shortage of all aircraft types made it impossible to form new squadrons for some months.

One of Australia's own primary defence needs was a rapid expansion of reconnaissance and coast-watching air units. The recall of No. 10, originally lent to Coastal Command with the proviso that it could be withdrawn should any threat arise in the Pacific, received earnest consideration. The Air Ministry offered to provide immediately nine Catalinas for Australia if No. 10 was allowed to remain in England where its training and experience in anti-submarine operations were of great importance. This arrangement was possible only because Canada waived her right to a previous allocation of flying-boats. The general position was so acute that, on 31st January, the Dominions Office had cabled a warning to the Australian Prime Minister, Mr Curtin,² requesting absolute economy in local air requirements.³ The timely purchase of 105 Hudson aircraft

¹ The US Navy in particular was extremely short of aircraft to fulfil its new responsibilities and in fact requested the release to them of some aircraft already allocated to UK. See S. E. Morison, *History of US Naval Operations in World War II*, Vol. I, *Battle of the Atlantic* (1948), p. 131.

² Rt Hon J. Curtin; MHR 1928-31, 1934-45. Prime Minister and Min for Defence 1941-45. Journalist; of Cottesloe, WA; b. Creswick, Vic, 8 Jan 1885. Died 5 Jul 1945.

³ "We are already heading dangerously near the point where the spreading of our resources leads to a general weakness. There is a point beyond which we cannot interfere with the flow to the

in America assured Australia's immediate needs for medium-range reconnaissance, and her only other direct requests to Air Ministry, at this time, was for the release of experienced Empire Air Scheme pilots and crews to fly these new aircraft back to Australia. Crews for the Catalinas were secured without difficulty by releasing men already trained in Canada, but Coastal Command opposed strenuously the withdrawal of any further men from the already-weak Hudson squadrons.⁴ The Hudsons were to be flown from India to Australia, but before any agreement could be reached concerning the release of Australians in England, the scheme was abandoned, as Japanese advances made the proposed route impracticable. During March 32 pilots returned to Australia; 19 were fighter pilots, 10 were fully-qualified general-reconnaissance landplane pilots and 3 were flying-boat pilots. Tentative provision was made for other experienced men to return later, but the main aircrew requirements for R.A.A.F. expansion in the Pacific were expected to come direct from training schools in Australia.

The tasks facing a gravely truncated Coastal Command early in 1942 were not easy to fulfil. The convoy routes in the North Atlantic were still of prime strategic importance, not simply as heretofore as the material lifeline along which supplies were passed but also because joint planning had long envisaged that should the United States enter the war she would immediately start transporting army units to the United Kingdom to complete their training. This was consonant with the agreed policy of "defeating Germany first", and was designed to obviate difficulties in obtaining sufficient troopships to transport a complete fully-trained expeditionary force when it was ready to strike. It was thought that U-boats, now freed from the restrictions which Admiral Doenitz had imposed on their operations within the western Atlantic *cordon sanitaire* established during 1941 by the Americans, would vigorously attack these convoy routes, along which evasive routing would no longer be so successful. Accordingly the main defensive arrangements were made in this area and American naval forces which had already been participating in a "short of war" degree, began to take a full share in trans-Atlantic convoy-escort tasks.

Events, however, did not immediately bear out these expectations and the main focus of U-boat activity moved swiftly from the North Atlantic convoy routes to the relatively unprotected coasts of Canada, the United States and the Caribbean Sea. Here a force of never more than six U-boats sank 225,000 tons of shipping before the end of January, mainly off Cape Hatteras in North Carolina, and Hampton Roads in Virginia. Should the entire U-boat fleet gain such outstanding successes, the enemy aim of sinking more shipping than could be replaced by new construction in

Middle East, from which already so many Army and Air units with their equipment have been withdrawn to the Far East The requirements of the United Kingdom have been placed last in the order of priority." See D. Gillison, *Royal Australian Air Force 1939-42* (in this series), for an account of the lack of first-line aircraft in Australia at this time.

⁴ On 7 Feb 1942 there were only 31 RAAF pilots on Hudson sqns and 20 in training. There were only 20 RAAF navigators qualified in general-reconnaissance duties. Although at this time crew composition was not as inviolable in Coastal as in Bomber Cd, the withdrawal of Australians would have interfered considerably with operational efficiency.

Allied shipyards appeared inevitable.⁵ The morale of German crews, which had fallen to a low point because of Allied air and naval counter-measures late in 1941, now rose proportionately to the rate of shipping sunk, and U-boats became more audacious in all waters. The Arctic, Mediterranean and American seaboard areas were all beyond the physical range of Coastal Command. Faced with this dilemma, Joubert determined to concentrate his meagre forces for the time being against the transit areas of the Bay of Biscay and the Strait of Gibraltar. This entailed weakness in No. 15 Group which was responsible for escorting Atlantic convoys, but he judged that before the enemy was driven away from its distant and profitable hunting grounds, squadrons equipped with long-range Liberator and Fortress aircraft would be ready to guard the convoys.

In accordance with this general plan to concentrate effort in the Bay of Biscay, No. 10 Squadron was moved, early in January, to its old base at Mount Batten, now almost free from enemy air raids. The crews were met by severe weather which stultified their hopes of increased activity. For three weeks a succession of troughs of low pressure, accompanied by rain and low cloud, prevented operations; and the monthly tally of flying fell to a mere 183 hours. On 13th January, during one of the recurrent gales, a Sunderland broke adrift and was in great danger of running aground on rocks when it was taken in tow by the Plymouth life-boat. Even when Sunderlands were able to fly the new Crossover patrols in the Bay, they found no trace of the enemy. Other squadrons were hardly more successful, only two U-boats being sighted during January, and both these were, in fact, encountered in positions remote from the main patrol pattern. It became apparent that U-boats outward-bound took great pains to cross submerged the areas patrolled by No. 19 Group, counting a few days lost on passage a light penalty for the very rich prizes in undefended ships awaiting them in American coastal waters. The bad weather also upset Joubert's plan in that it brought renewed pressure from the Admiralty for close escort of Atlantic convoys, and No. 10, with other squadrons, occasionally detached aircraft to No. 15 Group bases for this duty.

A small but steady stream of Australians trained under the Empire Scheme was now appearing in Coastal Command. Hudson crews, fully trained in Canada, began to fly their aircraft across the Atlantic, and reached squadrons without the normal delay at Bournemouth. The first Australians to do this were Pilot Officers Syer⁶ and Stevenson,⁷ who, greatly assisted by a strong following wind, arrived on 9th January after

⁵ From 57 U-boats in Sep 1939, the enemy fleet had grown to more than 250 vessels. Approximately 60 were employed for training, 100 were working up and 90 were operational. Of these 5 were based in Norway, 23 in the Mediterranean and 62 in French Biscay ports. It was estimated that at any one time, 60 per cent of operational U-boats could be at sea, so that theoretically 37 were available for action in the Atlantic, and this number would rise constantly because the average production rate of 11 per month far outweighed the casualties. In actual fact the average number at sea in the Atlantic during Jan was only 22, and as shown above only 6 at one time were in operational billets.

⁶ F-O G. V. Syer, 404544; 172 Sqn RAF. Clergyman; of Rockhampton, Qld; b. Caterham, Kent, Eng, 21 Jun 1911. (Resigned RAAF commission in 1942 to enter RAF as chaplain.)

⁷ Sqn Ldr R. D. Stevenson, 403626; 59 Sqn RAF. Clerk; of Artarmon, NSW; b. Sydney, 4 Jan 1917.

a record flight of eight hours. For all the scattered Australians, however, January was a quiet month. In No. 19 Group they flew with Nos. 209 (Catalina), 86 (Beaufort) and 224 (Hudson) Squadrons, but neither the close watch on Brest, nor the routine anti-submarine patrols produced any incident. In No. 15 Group many had been posted as replacements for experienced Hudson crews sent overseas from Nos. 53 and 59 Squadrons, but the month was spent in training activity only. The same conditions held for Australians sent to No. 220, then re-arming with Fortress aircraft, or to No. 120 (Liberator) Squadron, which was still not fully operational. Men detailed for long-range fighter duties found Nos. 143, 235 and 236 Squadrons acting only as training units; only Nos. 248 (Beaufighters) and 254 (Blenheim) Squadrons were fully operational, and even on these units newcomers flew only minor convoy-escort and visual-reconnaissance sorties. In No. 18 Group, Hudson squadrons were moderately active and had the positive satisfaction of alleviating dreary sea searches by occasional night-bombing attacks against enemy ships in Norwegian waters. Thus on 6th-7th January Pilot Officer Vickers,⁸ of No. 48 Squadron, sighted a merchantman of 3,000-4,000 tons sheltering in Bergen. While making a run up he fired a long burst of machine-gun fire at a troublesome searchlight which was extinguished, and then swept over the ship at low altitude dropping four 250-lb bombs. In the same raid Pilot Officer Austin,⁹ of No. 608 Squadron, attacked a graving dock with the same bomb load and was then challenged by an enemy fighter, which, after a brief exchange of shots, dived steeply towards a hillside and was officially claimed as "probably destroyed".

Coastal Command was still struggling against weather and lack of aircraft, when, early in February, a threatened breakout of the German naval squadron at Brest again drew aircraft away from planned anti-submarine duties. The arrival of German destroyers and mine-sweepers at Brest, towards the end of January, together with a strengthening of air units in northern France, was followed on 1st February by the appearance of the battle cruisers *Scharnhorst* and *Gneisenau* and the cruiser *Prinz Eugen* in the outer harbour. Hitherto one or all of them had been in dry dock since April 1941, but a breakout now appeared imminent. Although seaworthy, the ships were unlikely, after long inactivity and heavy bombing raids, to be in full fighting order, and a passage up-Channel to a home port was obviously the most likely move. On the further assumption that the enemy flight would be timed so that the area of greatest danger, the narrow waters of the Strait of Dover, would be traversed by night, a long-prepared plan entailing Bomber, Fighter and Coastal Commands was immediately put into operation. The entire bomber striking force stood by at instant readiness from 4th to 9th February, when because of strain and loss of training, the standby force was reduced to 100 aircraft. No. 11

⁸ F-O J. W. Vickers, 400300; 48 Sqn RAF. Chemist; of Elwood, Vic; b. Moombooldool, NSW, 25 Jan 1917. Killed in action 26 Mar 1942.

⁹ F-Lt J. S. Austin, DFC, 400363. 608 Sqn RAF, 32, 13 and 2 Sqn. Stock agent; of Lara, Vic; b. Melbourne, 15 May 1918. Died on active service 9 Nov 1943.

(Fighter) Group was warned to have aircraft ready at an instant's notice, either for close support to striking forces or for area cover, anywhere in the English Channel. Coastal Command was required to provide both reconnaissance and striking forces. Aircraft of No. 19 Group were ordered to fly a close reconnaissance just off Brest as frequently as possible; a nightly radar search between Ushant and the Island of Brehat; a similar patrol between Le Havre and Boulogne; and also to maintain constant photographic cover of Brest, which, if unsuccessful, was to be backed by visual day reconnaissance to confirm the continued presence of the enemy ships. At the same time, a maximum force of torpedo bombers was to be brought to readiness and based, if possible, at Thorney Island.

The first week of February passed with continual tension, but the air reconnaissances were duly carried out and revealed nothing. Areas in the North Sea were mined by No. 5 Group aircraft, but as the conditions of moon and tide grew steadily adverse to any sailing which would bring the enemy squadron through Dover Strait under cover of night, criticism arose that all British air striking power was immobilised to guard against a contingency which appeared increasingly improbable. Bomber Command, therefore, resumed a limited offensive against German targets and even the torpedo bombers were employed on every-day tasks. There were in Coastal Command only three active torpedo-bomber squadrons (each with two Australian pilots); and they were all under strength through oversea postings, and considerably below the level of training required to strike against enemy major warships adequately screened by small ships. Worse still it was never possible to concentrate this force at a central base; No. 42 Squadron was at Leuchars, in Scotland, watching the battleship *Tirpitz* which had moved to Trondheim on 23rd January; No. 86 Squadron and a flight of No. 217 Squadron was at St Eval, in Cornwall, to assist the watch on Brest; only one flight of No. 217 was at Thorney Island and this unit unfortunately lost its commanding officer, Wing Commander Larkin,¹ who was shot down and captured, during a patrol off the Dutch coast on 8th February. There was thus little cohesion in the force which, together with a few naval Swordfish torpedo bombers, was the main hope of inflicting serious damage to the enemy ships in confined waters. Even though No. 42 was ordered to Thorney Island on 10th February, it remained snow-bound at Leuchars, and it was not until the breakout had been discovered that it could move to Coltishall, a Fighter Command station in East Anglia, and conduct an independent strike.

Bomber Command raided Brest on the night of 10th-11th February, and, next morning, Sergeant Jenkins² of No. 224 flew the routine patrol off Brest without seeing any unusual activity. Brest was bombed again that night shortly after 9 p.m., but the ships were not hit and indeed sailed at 10.30 p.m., successfully eluding the British submarine *Sealion*

¹ W Cdr H. R. Larkin, AFC, 37048 RAF; comd 217 Sqn RAF 1942. Regular air force off; of Sydney; b. Sydney, 11 Sep 1912.

² Sqn Ldr H. V. Jenkins, 402123. 224 and 500 Sqns RAF. Cadet engineer; of Penrith, NSW; b. Toowoomba, Qld, 1 Jul 1918.

on patrol outside the harbour. Hudsons of No. 224 were duly flying the routine night searches, but radar equipment in two aircraft was unserviceable and visual conditions were poor when the naval squadron passed beneath. English coast-watching radar stations were jammed successfully by the enemy,³ and the ships had run the whole length of the Channel to Boulogne, before they were discovered at 10.42 a.m. on the 12th by an independent fighter patrol. At that late hour it was difficult to implement the planned coordinated air and naval attack, and, accordingly, in an attempt to damage one of the enemy battle cruisers sufficiently to delay the whole force, 6 naval Swordfish led by Lieutenant-Commander Esmonde⁴ made a gallant attack shortly after 12.30 p.m.; 7 Beauforts from Thorney Island attacked singly between 3.40 p.m. and 5 p.m. but made no claim, while 7 out of 9 Beauforts of No. 42, hurriedly dispatched from Coltishall, attacked in two sections just after 4 p.m.

There was considerable confusion throughout the afternoon because very widely differing position reports were received by Coastal Command and Bomber Command Headquarters and the exact progress of the enemy squadron was difficult to assess. When the Coltishall force set out, however, it was clear that the German naval squadron had by this time forced the Strait of Dover and was proceeding north-eastwards under cover of its own air defences. It was still felt that despite the earlier misfortunes there was a faint hope of success. Pilot Officer Archer, leading one section of No. 42, took off at 2.25 p.m. and at 3.55 he passed a Ju-88 on a westerly course. Almost immediately afterwards, in very poor visibility, he saw the cruiser *Prinz Eugen*; and, as he wheeled his section to starboard, a second vessel, with heavy superstructure, truncated funnel and clinker shield, came into view. The battle cruiser was surrounded by numerous escort vessels steering a north-easterly course at 15 knots, and Archer dived down and released a torpedo, which appeared to be running strongly towards the capital ship. He then flew into a barrage of gun fire and saw the heavy-calibre shells from the enemy's secondary armament hitting the water below his aircraft. The Beaufort was holed in the port wing and tail, and had the top blown from its turret. The rear gunner and wireless operator were wounded, but Archer successfully withdrew from the engagement and landed at Manston. In the same section of aircraft, Flying Officer Birchley also penetrated inside the defensive screen of destroyers and launched a torpedo against the *Scharnhorst*, but again no positive results were seen.

The twelve Beaufort torpedo bombers of Nos. 86 and 217 Squadrons, recalled from St Eval, failed to locate the target. Meanwhile Bomber Command had dispatched a total of 244 aircraft in three waves, but in conditions of low cloud, they had similar difficulty in finding the ships.

³ "The escape of the *Scharnhorst* and the *Gneisenau* was . . . a Nazi scientific triumph, though the public could not be told so: the British radar watching their movements had for the moment been effectively jammed." W. Eggleston, *Scientists at War*, (1950), p. 7.

⁴ Lt-Cdr E. Esmonde, VC, DSO, RN. Comd 754 Sqn FAA 1939-40, 825 Sqn FAA 1940-42. Of Drominagh, Borrisokane, Co Tipperary, Eire; b. Huthwaite House, Thurgoland, Yorkshire, Eng, 1909. Killed in action 12 Feb 1942. Esmonde was appointed to the DSO in recognition of the role played by 825 Sqn in the *Bismarck* action.

Only thirty-nine bombers are known positively to have attacked the naval units, though a further fifteen aircraft which failed to return may possibly have bombed. Of the nine Hampdens sent out by No. 455 Squadron, six attacked, and four Australians on other squadrons successfully found and bombed the enemy ships. Because of the poor visibility, the elaborate nature of the defences and lack of corroborative evidence, no claim to damage was finally submitted. To cover all these attacking forces, Fighter Command provided 398 sorties in the form of escort and top cover against enemy fighters, which were present in formidable numbers throughout the afternoon. No. 452 Squadron flew as part of the Kenley Wing which, after the failure of the Beauforts to rendezvous at Manston, flew in loose formation north-eastwards and found the enemy ships off Mardick and Gravelines.⁵ One squadron climbed to engage enemy aircraft while the other two dived to attack minor warships. Squadron Leader Truscott led eleven pilots of No. 452 who raked an enemy destroyer with machine-gun and cannon fire to such good effect that return fire, heavy at first, had ceased when the last two pilots made their attacks. Black smoke was seen issuing from behind the bridge, and the destroyer was claimed as damaged.

It was apparent that air and naval attack had failed utterly to arrest the progress of the enemy ships. Whitley aircraft equipped with radar were sent to shadow and No. 455, with other units of No. 5 group, laid magnetic mines that night off the Elbe estuary. On 13th February, long-range fighters of Coastal Command made further reconnaissance sweeps, but only Flight Lieutenant Rose,⁶ flying Beaufighter Y/248, actually found the naval squadron. Rose broke cloud and flew inside the screen of seven destroyers to within a hundred yards of the *Scharnhorst* before being driven off by accurate gun fire. The ships were later discovered by Photographic Reconnaissance Unit aircraft in Baltic ports. The three Beaufort squadrons were moved to Scotland to dispute any further passage of German fleet units to Norwegian waters, and reconnaissances covering the North Sea were strengthened.⁷ Two Australian Sunderlands were detached from Plymouth to Felixstowe, but only one night patrol was flown on 20th-21st February and they were then withdrawn.

⁵ The position of this attack is given as "10 miles off Mardick" in the personal combat reports of Truscott and Gp Capt Beamish, who further describes "the enemy convoy stretched out from Mardick to Gravelines". From other accounts it is possible that the encounter was farther north-east.

⁶ W Cdr B. F. Rose, DFC, 270, 235 and 248 Sqns RAF, 450, 31 and 30 Sqns; comd 5 OTU 1942-43, ADHQ Melbourne 1945-46. Regular air force off; of Melbourne; b. Bondi, NSW, 9 Apr 1918.

⁷ The Admiralty feared that the *Tirpitz* would be joined by other heavy units and cruisers, and thus constitute a fleet which could disrupt Atlantic and Russian convoy routes besides necessitating a large Home Fleet at Scapa Flow. In actual fact, these enemy naval moves were primarily defensive, inspired by Hitler's intuition that the Allies and Sweden were preparing to recapture Norway. It was Hitler himself who, against Adm Raeder's advice, had insisted at conferences on 12 and 22 Jan 1942, that the *Brest Squadron* must be withdrawn to Norway, and he had planned the passage of Dover Strait in daytime so that the *Luftwaffe* could give maximum protection. This unprofessional decision unwittingly cut right across the careful British defence plans and undoubtedly contributed greatly to the escape of the *Scharnhorst*, *Gneisenau* and *Prinz Eugen*. Of interest, Eggleston, pp. 97-8, writes that an Anglo-American airborne invasion of northern Norway (Operation *Plough*) was planned for the winter of 1942-43 but was cancelled at a late date.

Bitter disappointment was felt at this reverse which revealed the limitations of the weak air and naval forces then available. Public sentiment was well expressed by *The Times*, which wrote:

Vice-Admiral Ciliax has succeeded where the Duke of Medina Sidonia failed Nothing more mortifying to the pride of sea power has happened in Home waters since the 17th century.⁸

On a practical plane the R.A.F. benefited from the departure of the *Scharnhorst* and *Gneisenau*. Bomber Command was now able to concentrate purely on the task of bombing Germany. Coastal Command, likewise, was able to define the main functional tasks of each group and allocate its aircraft accordingly. Henceforth No. 15 Group, with long-range aircraft, was primarily concerned with defeating U-boat attacks on convoys; No. 19 Group was to attack U-boats and merchant ships in the Bay of Biscay; No. 16 Group was to strangle enemy shipping routes in the North Sea and prevent German motor torpedo-boat attacks against British coastal convoys; and, in the north-east, No. 18 Group was charged with limiting naval and merchant traffic between Norway and Germany, although at times, its aircraft were to be available for anti-submarine operations. Moreover, the circumstances of the escape of the enemy ships had revealed errors in control, coordination and training of aircraft hitherto engaged on anti-shipping strike duties. Coastal Command, Bomber Command, Fighter Command and the Fleet Air Arm had all previously conducted separate operations in defined sections of the English Channel, but now Joubert proposed that No. 16 Group should assume the direction of this campaign, although striking forces of fighter-bombers or light bombers would still be required against specific targets. Bomber Command was at the same time made responsible for all mine-laying in enemy waters, thus releasing Coastal torpedo squadrons from a task which had hindered training for their primary role.

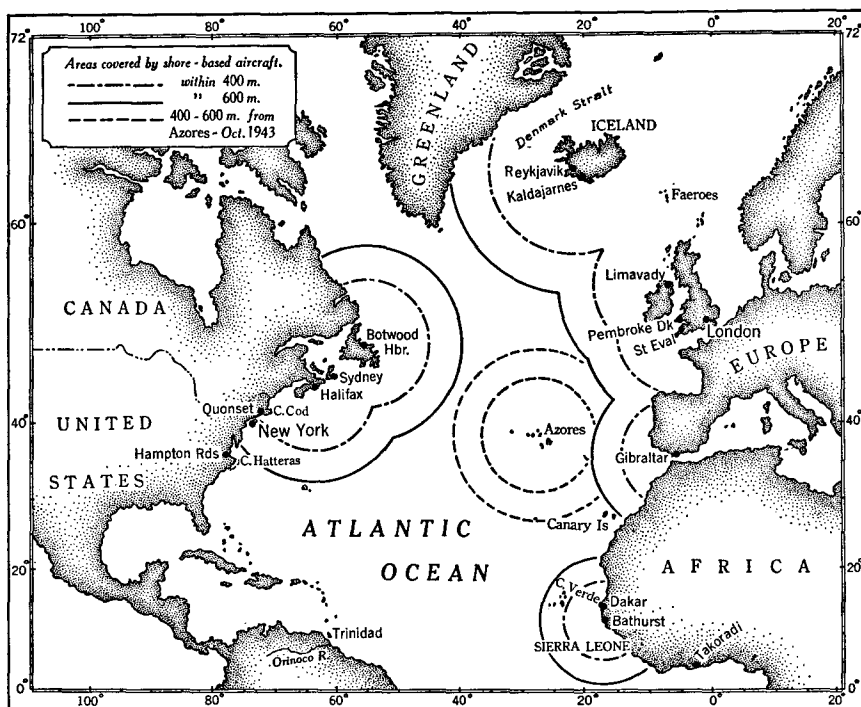
This general clearing of the air did not bring immediate successes to Coastal Command which was still beset by shortage of aircraft and crews. During February more squadrons were sent overseas and another Hudson squadron (No. 500) was temporarily disbanded.

This weakness of Coastal Command also caused considerable anxiety within the Admiralty which originated a paper at this time urging a spectacular increase in the strength of anti-submarine aircraft. Joubert himself, while acknowledging that the force under his command must be decided in accordance with the over-all priorities laid down by the Defence Committee on the advice of the Chiefs of Staff, expressed his concern on 19th February that with existing resources Coastal Command could not operate efficiently:

The present state of the Air-Sea war in the Atlantic, in the Mediterranean and in the more distant seas, does not admit of delay. While fully aware of the importance of a sustained bomber offensive, it seems to me that if we are to survive this year of war and keep our commerce and our war material moving across the

⁸ Both *Scharnhorst* and *Gneisenau* struck mines laid presumably by the RAF some time earlier and both were damaged. *Gneisenau* never put to sea again.

seas, some part of the bomber offensive will have to be sacrificed. We are losing shipping at a rate considerably in excess of both American and British building output. German U-boats alone are coming into commission at the rate of 20 a month and surface raiders are by no means to be ignored. Our present weakness in naval resources and having regard to the slow rate of naval construction means that there is only one answer to the problem and that is an adequate supply of long-range aircraft for Coastal uses. I am not here appealing for Coastal Command alone. I am having regard to our requirements all over the world.



Air cover for Atlantic convoys, 1942.

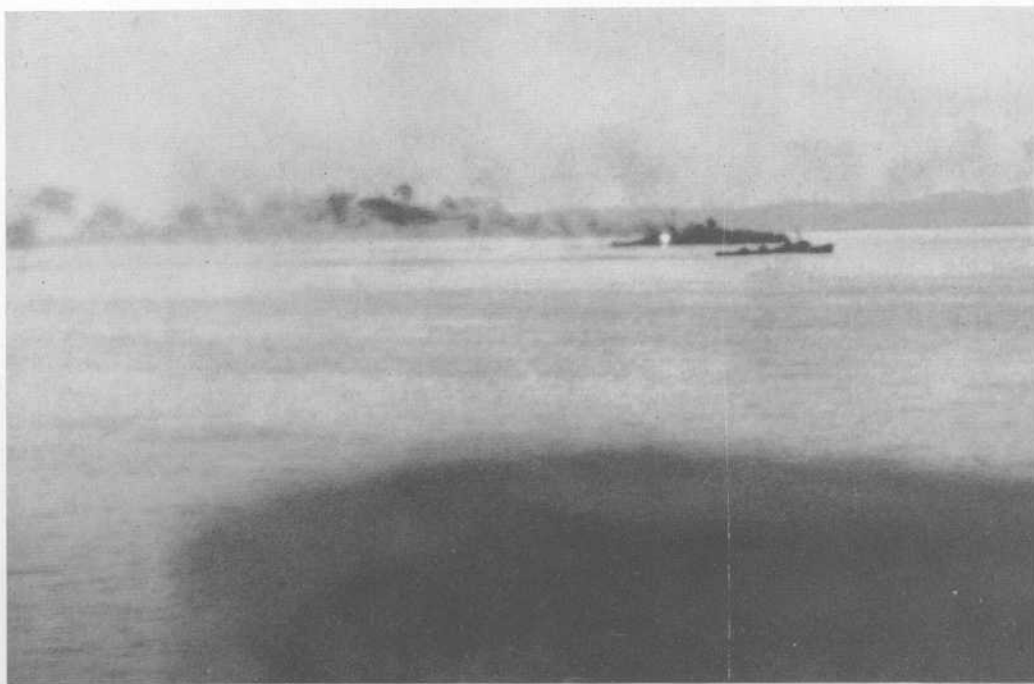
In the same letter he referred to the extremely tardy provision of Liberators or similar aircraft, the withdrawal of Catalinas to other theatres, and the expectation that Whitleys and Wellingtons would die out leaving the command extremely weak in long-range aircraft properly engineered with A.S.V. He made a strong plea for an allocation of Lancaster aircraft which had admirable range and load characteristics and into which radar aids could be incorporated during production.⁹ One week later he wrote again emphasising that to prevent enhanced experience and morale among U-boat crews it was essential to maintain as far as possible a continuous

⁹ This was by no means Joubert's first attempt to secure long-range aircraft. On 10 Dec 1941 he had offered to hand over the productive capacity of Short Harlands (3 Sunderlands per month) to build Stirlings (6 per month) for Bomber Cdn in return for 6 Liberators per month. The Liberators, however, could not be procured.



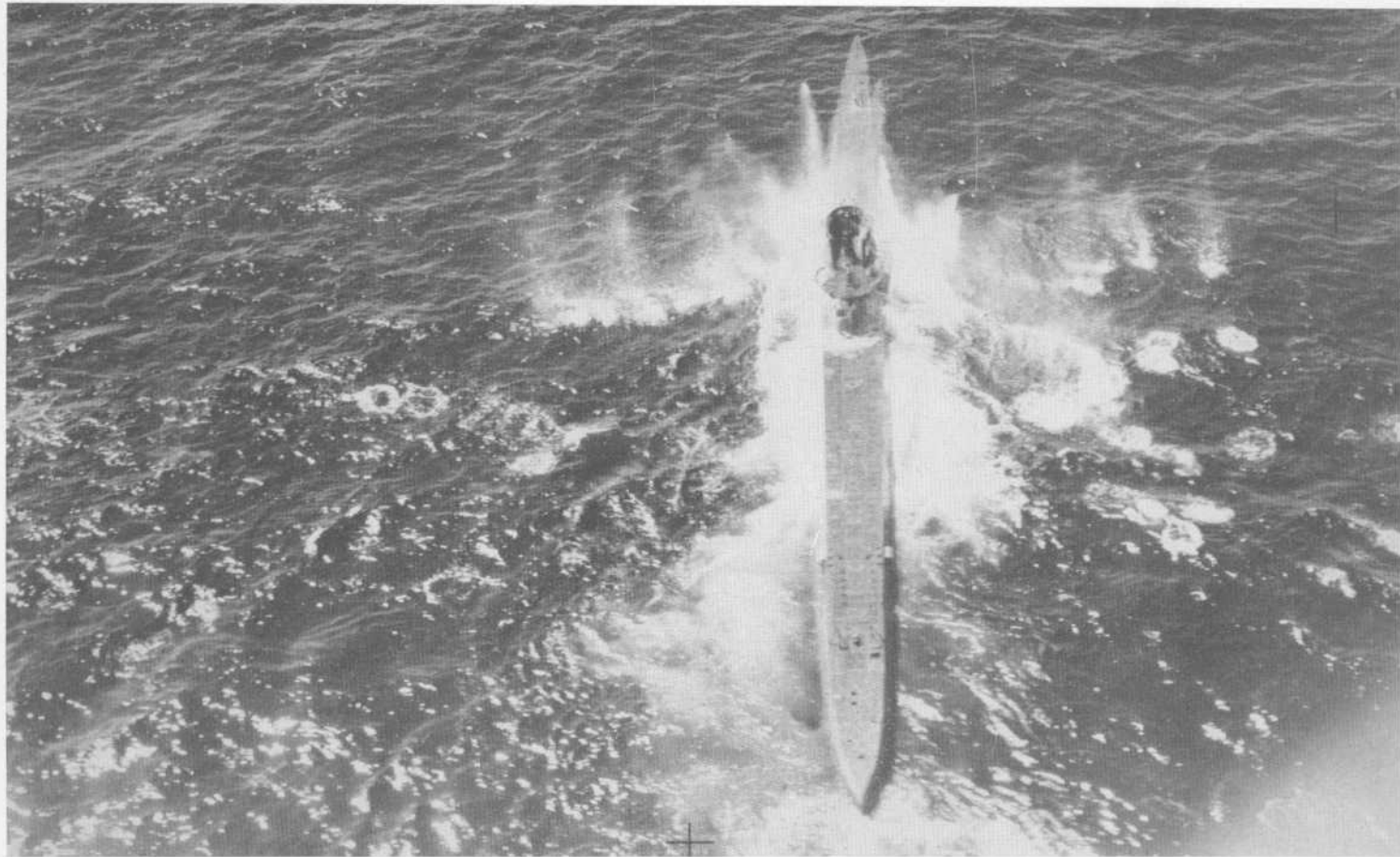
(Air Ministry)

With the bomb doors open a Hudson of Coastal Command dives low to release its bombs at an enemy vessel (out of the illustration) off the Dutch coast, April 1942.



(Air Ministry)

The German cruiser *Prince Eugen* and escort proceeding southwards along the Norwegian coast, photographed by P-O G. L. Duffield (an Australian serving with No. 42 Squadron, R.A.F.) during the evening attack of 17th May 1942.



In the Bay of Biscay the outward-bound *U71* (517 tons), under attack by machine-gun fire from a Sunderland of No. 10 Squadron captained by F-Lt S. R. C. Wood, had been forced to the surface by depth-charges from the Sunderland on 5th June 1942. The submarine had regained trim with its bows awash and, although severely damaged, was able to return to its base at La Pallice because the Sunderland had no more depth-charges.

(R.A.A.F.)

offensive against every U-boat which surfaced within range of aircraft. He stated:

There are two requirements necessary to obtain superiority over the U-boats: (a) adequate numbers of aircraft of suitable range and performance to carry out patrols and (b) the most effective armament, special equipment, aids to navigation and other equipment, which will lead to the U-boat being found and fixed and then attacked by means which will not leave the issue in doubt.

An appendix to this letter reviewed the principal requirements for efficient operations including improved types of Torpex bombs and depth-charges; bomb sights; radio-telephone, radio direction-finding and radar apparatus; radio altimeters and blind-approach aids; flares and airborne searchlights.

Neither aircraft nor equipment, however, could be immediately forthcoming and accordingly, following a policy of doing the best with what was at hand, Coastal Command attempted to maintain some pressure in the Bay. With better weather No. 10 increased its operational effort to 379 hours, but searches both by day and night for U-boats were unsuccessful, and the only positive incident was an inconclusive battle between a Sunderland and an He-115 on 12th February. Twice aircraft were sent out to locate a suspected enemy blockade runner, *Elsa Essberger*, which had taken shelter in the Spanish port of Ferrol, but this ship finally escaped to France.¹⁰ Two ferry flights were made early in the month to Gibraltar and Malta, the second aircraft being destroyed at its moorings during an enemy air raid against Kalafrana. Despite a dearth of action during this transition period, No. 10 continued to be in a favourable position, for, controlling its own training and maintenance organisations, it escaped from most of the problems which troubled others at a time of universal scarcity. Wing Commander Richards, and his flight commander, Squadron Leader Douglas¹ (who was the last of the original pilots), worked hard to train a completely new third generation of aircraft captains. Fewer than forty of the first oversea draft of ground staff remained, but they formed a significant experienced nucleus around which the squadron revolved. As a temporary measure, until drafts from Australia could be resumed, aircrew members were secured from the Australian section of the personnel reception centre at Bournemouth and placed individually in the more experienced of the existing crews, from which they quickly learned the many facets of operations over the Bay of Biscay.

No. 53 (Hudson) Squadron, which had been re-forming with a significant proportion of Australian pilots, became operational in mid-February. A few anti-submarine patrols were flown from Northern Ireland, but the squadron soon moved to North Coates in No. 16 Group to attack enemy shipping in the North Sea. One Australian failed to return from

¹⁰ The cargo carried by *Elsa Essberger* totalled 6,767.4 tons, comprising rubber 4,059, dammar 52, tyres 266.4, tin 55.6, tin ore 30.2, tungsten ore 48.2, wood oil 17, coconut oil 334.6, walnut oil 57, shelled peanuts 900, leather goods 85.9, sole leather 57.7, buffalo hides 27.1, hemp 189.7, gut 14, animal tallow 169, coffee 23.9, tea 106.7, dried egg 65, nutmeg 7.5, miscellaneous 110.9.

¹ W Cdr D. L. G. Douglas, OBE, DFC, 171. 10 Sqn; comd 461 Sqn 1943-44. Regular air force offr; of Willoughby, NSW; b. Sandgate, Qld, 5 May 1917.

a night reconnaissance on 24th February. Two days later Sergeant Guthrie² made a determined daylight attack against a convoy which he encountered west of Horn Reefs. There were seven merchant ships and four naval escorts, all armed with anti-aircraft guns, but Guthrie dived low and dropped his four 250-lb bombs at the largest vessel, while his gunner fired in the hope of distracting some at least of the enemy gunners. The Hudson was hit repeatedly and was so badly damaged that it was forced to crash-land at Bircham Newton, the nearest friendly airfield. These ultra low-level bombing attacks had proved successful, because bombing errors were reduced to a minimum, but they were made only at a rising cost in aircraft and crews as German shipborne armament was steadily increased. Another Hudson squadron (No. 59) was also at North Coates training for similar duties, and although no operations were flown, Sergeant Nankervis,³ while on a special navigation exercise on 18th February, was forced to take cover in cloud from two enemy aircraft. Australians in this area looked forward to a bitter, hard-fought campaign during the spring months. A feeling of expectancy also animated men in No. 18 Group, which now held all the three operational torpedo-strike squadrons. The Beaufort patrols were, however, negative and the anticipated move of further heavy German naval units to Norway did not take place during the latter part of the month.

Continued withdrawals for oversea theatres left No. 19 Group, during March, with only one Sunderland, one Whitley, one Hudson and one Blenheim squadron to prosecute the planned intensive campaign against U-boats. This force was unable to fly regular patrols, and although the Australians again increased their effort to 477 hours, this was spread over a variety of duties. Night patrols, with the aid of improved radar sets, were often rendered useless by the presence of French and Spanish fishing vessels in the search area. On 1st March, the only U-boat actually located was already submerging when seen by Flying Officer Gillies,⁴ and it had disappeared before the Sunderland could be manoeuvred for attack. On returning from this flight, Gillies found Mount Batten blanketed in fog, and after several abortive attempts to land, during which ships in Plymouth Sound fired on him, he finally laid an emergency flare path by dropping flame floats and landed outside the breakwater. A second Sunderland was less fortunate, for, diverted first to Calshot and then to Pembroke Dock, and finding these bases also fog-bound, it was badly damaged when a forced descent had to be made in heavy seas off St Gowan's Head.

The Sunderlands were also required to perform anti-shipping patrols until more suitable aircraft could be obtained, and this inevitably reduced the number of anti-submarine sweeps. On 8th March, four crews were

² F-Lt R. C. Guthrie, 400397, 53, 282 and 235 Sqns RAF. Textile representative; of Toorak, Vic; b. Birmingham, Eng, 8 Oct 1917.

³ F-Lt J. K. Nankervis, 400284, 59 and 143 Sqns RAF. Cadet engineer; of Williamstown, Vic; b. Northcote, Vic, 28 Dec 1921.

⁴ W Cdr R. N. Gillies, 250644; comd 10 Sqn 1944. Motion picture projectionist; of Footscray, Vic; b. Castlemaine, Vic, 25 Dec 1919.

sent out to search for a tanker suspected of sailing to refuel U-boats or surface auxiliary warships. During the following two nights, several ships were found and a few abortive attacks made against them with depth-charges. On 20th March the only apparent success, and that against a target of minor importance, came when Flying Officer Pockley⁵ was ordered to patrol the enemy coastal iron-ore route between Santander and Bordeaux. Just before 7.30 a.m. he sighted a motor-launch some ten miles north-west of Biarritz. The launch was between fifty and sixty feet in length, with a curved bow and stem and had a small deck house amidships; it was slate-grey in colour and flew the German flag. At 7.45 a.m. Pockley made two dive attacks out of the sun and though, through faulty mechanism, the depth-charges did not fall, his nose- and rear-turret gunners scored many strikes. Further attacks were then made and four depth-charges exploded under the launch lifting it on to the crest of the explosion wave. When this subsided, much wreckage was seen, and after a final attack of similar accuracy, the enemy crew jumped overboard with rafts and floats, and the launch seemed a mere shell, well down by the stern.⁶ An enemy single-engined fighter was then seen approaching and the Sunderland withdrew.

During March Australians continued to share in the monotonous, unspectacular, but vital trusteeship of the grey, sullen waters of the North Atlantic. Crews in No. 18 Group were called upon to maintain regular patrols in Norwegian waters, despite uniformly bad weather. On 20th March, when five Beauforts of No. 42 conducted a special strike, only Archer and Birchley landed safely at base. The other three aircraft crashed while trying to return and two crews were lost. Other Beauforts of No. 86, including one flown by Sergeant Chippindall,⁷ were also out that day but were more fortunate, and, during a break in the weather, they made emergency landings at Wick. A week later Chippindall attacked an enemy ship near Lister, while he was engaged on solo armed-torpedo-reconnaissance patrol, a task which, at this time, accounted for much of his squadron's activity. The flow of Australians to Hudson squadrons temporarily ceased at this time because of the decision to form No. 459 Squadron R.A.A.F. in the Middle East with this type of aircraft. However, No. 59, which had nine Australian pilots, came into the line at North Coates to assist No. 53 in anti-shipping role.⁸ Several daring low-level attacks were made during the month, the most successful coming on the 26th, when Pilot Officer Charlton⁹ damaged a medium-sized ship in convoy near Norderney.

⁵ Sqn Ldr H. G. Pockley, DFC, 260608. 10 and 41 Sqs, 200 Flight. Salesman; of Mosman, NSW; b. Graceville, Qld, 5 Feb 1913. Killed in action 25 Mar 1945.

⁶ From enemy records, this launch was not sunk.

⁷ F-Lt L. D. H. Chippindall, 404234. 86 Sqn RAF, 100 Sqn. Clerk; of Sandgate, Qld; b. London, Eng, 27 Dec 1918.

⁸ The majority of crew members were non-Australian. Throughout the war the number of all-Australian crews on squadrons other than RAAF units was very small.

⁹ Sqn Ldr M. Charlton, DFC, 402638. 59 Sqn RAF; comd Parachute Training Unit 1945. Clerk; of Killara, NSW; b. Killara, 10 Mar 1918.

Towards the end of March, Coastal Command gave general support for the Commando attack on St Nazaire. Although the primary object was to destroy the large dock there, which might be used as a re-fitting base for *Tirpitz*, St Nazaire was also a major U-boat port, so that any damage to general facilities was of great importance. Preliminary photographic cover was provided for a week before the assault, two of the surveys being performed by Sergeant Henry,¹ the only Australian operating at this time with the Photographic Reconnaissance Unit. On 27th March four Sunderlands flew parallel sweeps through the middle Bay as far as the Spanish coast, while Whitleys searched to the eastward. To support the troops and naval vessels actually engaged at St Nazaire on 28th March, only seven Beaufighters and five Blenheims could be spared, so to supplement this meagre total, Hudsons were withdrawn from Nos. 53, 59 and 407 Squadrons and based temporarily at Predannack in Cornwall. Only five of the twenty-nine aircraft of all types dispatched on support duties actually made contact with the naval force.² There were several inconclusive combats, but Flight Sergeant Taylor,³ in a Beaufighter of No. 236 Squadron, was seen by naval observers to engage a Ju-88 which blew up in mid-air. Unfortunately Taylor had pressed home his attack to such short range that his aircraft was struck by fragments of the disintegrating enemy aircraft and he too crashed in the sea.

Disappointing as had been the results of the last few months, they did not disprove the assertion that, once given sufficient aircraft, Coastal Command could defeat the threat of U-boat warfare. Joubert's oft-raised plea, that, though the war against Germany might not be won in the Atlantic, it would certainly be lost unless the U-boat was mastered, led the Air Ministry to allocate considerable reinforcements during April. These came partly by the formation of new squadrons and partly by transfer of others from Bomber Command.⁴ Though both these types of squadrons needed special training, they would be available in mid-summer to police both the Bay of Biscay and the Iceland-Faeroes Channel. Moreover, a recognised flight plan for No. 19 Group, consisting of twenty-seven sector patrols extending fan-wise from the Scilly Isles, was introduced so that more thorough and consistent search could be made. The northern transit was covered by overlapping rectangular and Crossover patrols, with special emphasis on regular searches during the short summer nights. At the same time, some technical aids, so long awaited, became available in small quantities: improved radar sets gave hopes of discovering more U-boats at sea; the Torpex filling for depth-charges represented a great increase in lethal efficiency; while the new 25-foot setting for depth-charge detonation made this ideally suitable to destroy surfaced or crash-diving

¹ Sgt V. E. M. Henry, 404245. 87 Sqn RAF, Photo Rec Unit RAF. Clerk; of Brisbane; b. Bullfinch, WA, 8 Jun 1915. Killed in action 18 Apr 1942.

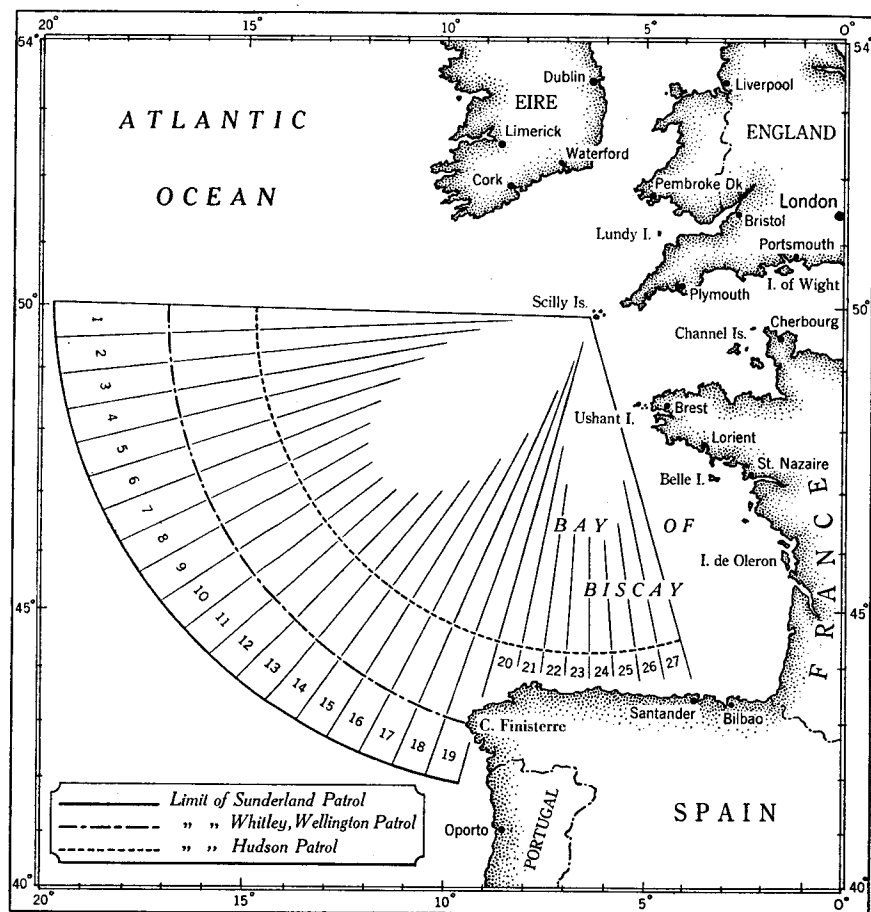
² 35 Whitleys and 26 Wellingtons also took off to bomb shore objectives but owing to bad weather they returned with their bomb load.

³ F-Sgt A. W. Taylor, 402417; 236 Sqn RAF. Salesman; of Rockhampton, Qld; b. Wolverhampton, Eng, 20 Sep 1913. Killed in action 28 Mar 1942.

⁴ 51, 58 and 77 Sqn (all Whitleys) to 19 Gp; 304 (Polish) and 311 (Czech) Sqn (both Wellingtons) to 15 Gp.

U-boats, the very ones to which the efforts of Coastal Command were primarily devoted.⁵

Australian interest in Coastal Command rose markedly with the appearance of two more squadrons and many individuals. On 17th April No.



Anti-U-boat patrols in the Bay of Biscay, April 1942.

455 transferred together with No. 114 Squadron R.A.F. from Bomber Command as a torpedo-bombing squadron. At first it was to conduct mining and bombing raids in the Danish Belts and off the Norwegian coast, until the crews were fully trained in torpedo tactics. The Hampden was by no means an ideal type for daylight operations off a heavily-defended coastline, because it was relatively slow, badly armed, unmanoeuvrable

⁵ Weight for weight the underwater efficiency of Torpex was $1\frac{1}{2}$ times that of TNT. As Torpex was 10 per cent heavier a greater amount of explosive could be packed in a given case and this further increased the potential lethal radius of existing depth-charges. Torpex was a combination of TNT, RDX (a new explosive) and aluminium.

and not fitted with radar. However, it was the only type likely to be available in any numbers within the next twelve months, it could carry a torpedo, and it was sturdy. The ideal torpedo carrier had already been chosen after special tests with a Beaufighter, but these aircraft were at this time urgently required for other duties. The tactical limitations of the Hampdens had to be accepted, both by Coastal Command and by the crews who flew them, if anti-shipping duties were to continue at all. The other new Australian squadron, No. 461, was more fortunate, because, originally intended as a Catalina squadron, sufficient Sunderlands were procured for it to form at Mount Batten. This was in accord with the expressed Australian desire to have squadrons flying identical types of aircraft and based at the same location. Squadron Leader Burrage took temporary command of the new unit and, with Gillies, began swiftly to train, as captains, the Empire Scheme pilots already attached to No. 10, and no longer required, because a reinforcement draft had since arrived direct from Australia. Richards made the training organisation and experience of No. 10 freely available to the new unit, but unfortunately the principle of preserving the identity of regular R.A.A.F. squadrons prevented him from transferring, permanently, any of his key ground and air crews.

Although new formations were not yet ready for action, exceptionally good weather during April encouraged No. 19 Group to mount a vastly increased effort in the Bay of Biscay, where eight U-boats were discovered and attacked in April, and another six in May. The Australians had only one attack in April, but no less than four during May, although all attacks failed as efficient enemy look-outs had, in each case, allowed the U-boat to dive before the Sunderland could attack, the depth-charges falling outside lethal range. In other ways, too, the Australians found increasing incident in their Bay patrols. Sunderlands were called on several times to escort Sierra Leone convoys now experimentally routed closer in so that they could enjoy air protection, when their route directly crossed the path of U-boats and aircraft operating from the Gironde. Thus, on 5th April, Pilot Officer Brown⁶ and Flight Lieutenant Vernon,⁷ while escorting a naval force, frustrated the persistent attempts of twelve Ju-88's to bomb these ships. Enemy air opposition to Coastal Command's attempt to gain air superiority over the waters of the Bay, grew visibly during these two months, and several Sunderlands were attacked during their patrols; though these combats, usually with a single Arado 196, were all inconclusive. The Australians were also frequently sent out on anti-shipping patrols and because the only practicable attack in a Sunderland was a shallow dive attack, anti-submarine bombs were substituted during May for depth-charges which had unreliable trajectories. Four attacks resulted from these patrols, the most significant occurring on 15th May while

⁶ Sqn Ldr T. Brown, DFC, 3933; 10 Sqn. Regular airman; of Merrylands, NSW; b. Merrylands, 26 Apr 1917.

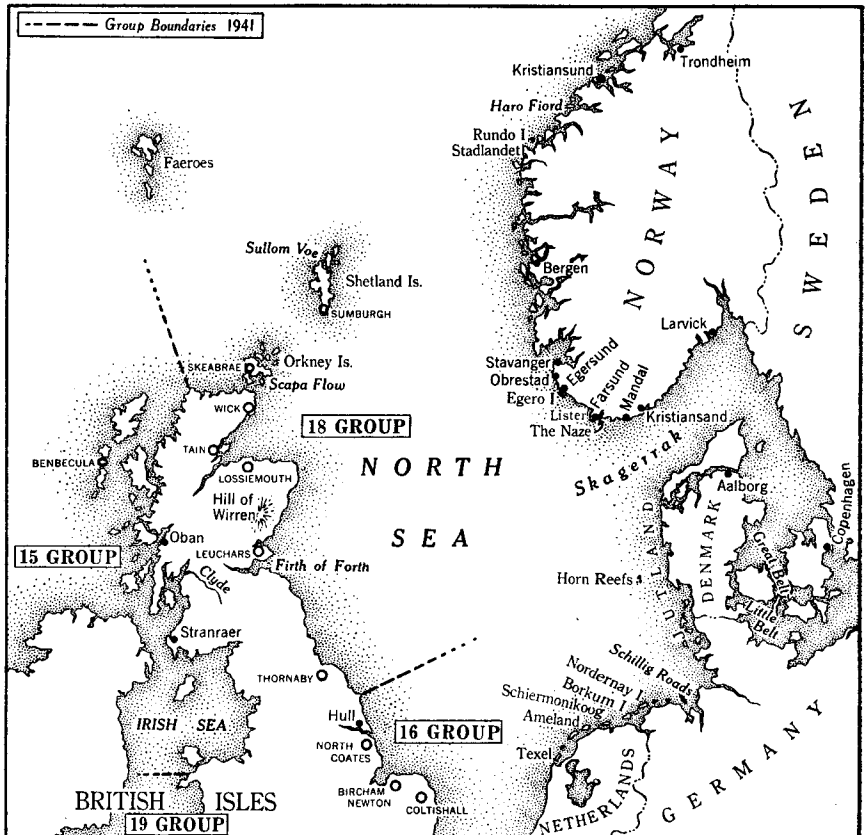
⁷ W Cdr D. Vernon, DSO, 462. 10 and 11 Sqns. Regular air force offr; of Greenwich, NSW; b. Middlesbrough, Yorks, Eng, 29 May 1915.

Pockley was on a transit flight to Gibraltar. North of Cape Villano he sighted a U-boat astern of a 6,000-ton merchant vessel. The U-boat submerged while the Sunderland was still six miles away, but five separate attacks, each with one or two depth-charges, were made on the steamship. Four depth-charges fell very accurately and twice the bows of the ship were lifted out of the water. Each attack was opposed by gun fire, although a British ensign and R.A.F. roundels were later displayed by the vessel in an attempt to prevent further attack. Pockley remained shadowing and reporting the movements of his target until ordered to resume his original duty. The protracted action had left insufficient fuel for him to reach Gibraltar, but he made a masterly forced-landing in the sea off Cape Trafalgar and was towed to Gibraltar by a R.A.F. pinnace. The damaged ship succeeded in reaching Bordeaux, where it was photographed while unloading, and was identified as the *Munsterland*.

The dispatch of crews of No. 202 Squadron to the Indian Ocean, left Gibraltar without adequate air reconnaissance until that squadron could be built up with new crews; consequently throughout April and May, Sunderlands were on detachment and ferrying duties in the western Mediterranean. Most of their flights were without incident, and again it was Pockley who found action, when, on 28th May, he sighted a fully-surfaced Italian submarine. He dived to attack, but was forced to take avoiding action in the face of intense fire from the submarine, which turned sharply away to port but showed no intention of diving. A second approach was made, all turrets firing in an attempt to silence the Italian guns, and Pockley then turned quickly to drop his depth-charges. Only four fell, the bomb circuit for the port bomb rack failing to act, and as the submarine made an emergency turn to port, the partial "stick" of depth-charges overshot. While circling the still-surfaced enemy, Pockley instructed his crew to transfer the remaining depth-charges to the starboard rack. He then made a final attack from dead astern in order to minimise the effect of any avoiding action. The submarine again turned to port, but the depth-charges straddled it. After the explosion plumes had died away, it was seen holding an erratic course at greatly reduced speed, and now had a large rent in its bow-casing and other damage forward of the conning tower. The Sunderland remained circling until a Hudson arrived from Gibraltar to make a further attack. Pockley was credited with damage to this submarine, the first positive assessment achieved by No. 10 Squadron for fifteen months.

Pockley was overestimated by some of his contemporaries and underestimated by others. His engagements were magnified in popular accounts until he assumed the status of "The U-boat Magnet", while some of his fellows, perhaps influenced by his self-conscious itch for action, dismissed him as being lucky. Although not in all respects a great pilot, he was an outstanding captain of aircraft. He studied, and made his crew study, every aspect of the existing tactical and technical situation, and had one of the best-trained crews at that time serving in Coastal Command. He strove to master the difficulties of pilot-bombing under all circumstances

and, although not one of his attacks was fully successful, he did show consistent judgment and accuracy. He represented a new tradition of well-trained and single-minded aircraft captains, who, by taking full advantage of the increasing scientific aids available to them, were to bring great changes in the air war against U-boats.



Coastal Command: North Sea and Norway.

Meanwhile, Coastal Command was still anxious to limit enemy sea-borne trade in the North Sea, and this task fell chiefly to the Hudsons, for yet another Beaufort squadron had gone overseas and the Hampden torpedo bombers were, as yet, untrained. Seven attacks off the Dutch coast were made during April by Australians of Nos. 53 and 59 Squadrons and, on the night of the 27th, Guthrie attacked and sank the Danish motor vessel *Inga* (1,494 tons), south of Horn Reefs. Daylight armed reconnaissances were flown by sections of three Hudsons during the first fortnight in May, but these proved very expensive, as enemy coastal convoys were, by this time, heavily protected by well-trained anti-aircraft

escort ships, and often had fighter aircraft cover also. From one of these sorties, on 11th May, Sergeant Scouller⁸ and one other pilot of No. 59 failed to return. After sighting an enemy convoy of eight ships off Schiermonikoog, one Hudson was last seen climbing steeply for cloud cover over the centre of the convoy. Scouller was, at this time, crossing the bows of a 10,000-ton ship and he, too, was not seen again by the only surviving aircraft, which reached base very badly damaged after attacking a destroyer escort. No. 53 now transferred to No. 19 Group, and No. 59 reverted mainly to night strikes, with a new armament load of two 250-lb and six 100-lb bombs, which had been introduced to increase the probability of hits. At the end of May, successful night attacks were made on convoys off Ameland and Borkum, on each occasion R.A.A.F. pilots damaging two ships.⁹

Meanwhile, Hudson and Beaufort squadrons in No. 18 Group kept a close watch on the Norwegian coast, and maintained the new system of anti-submarine patrols around the Shetlands. On 4th May, Austin of No. 608 damaged a ship lying in Kristiansund North anchorage.¹ The same pilot took part in a widespread search later that month, for an enemy cruiser moving from Trondheim and the Baltic, and, during the afternoon of 17th May, successfully found and reported *Prinz Eugen* north of Lister. This and other reports justified the conclusion that the enemy cruiser, and its escorts, would pass Lister Light between 7 p.m. and 8 p.m. that evening. All available torpedo bombers, with long-range fighter escort and a diversionary force of Hudson bombers, were ordered to attack at that time in the open waters off the Naze, before *Prinz Eugen* could turn eastward towards the Skagerrak. The total force which could be assembled consisted of 27 Beauforts, 8 Beaufighters, 6 Blenheims and 13 Hudsons, and, for expediency, this was divided into two waves. Twelve Beauforts of No. 42 Squadron with 6 Blenheims and 4 Beaufighters left Wick at 6 p.m. to sweep northwards from Kristiansund South. When they found the target the Beauforts were to launch torpedoes in two section attacks, while the Blenheims made feint torpedo attacks from the beam to confuse the defences, and the Beaufighters made direct attacks on escort vessels. This first wave successfully intercepted *Prinz Eugen* at 8.15 p.m., when she was steaming a south-easterly course, two destroyers disposed on her starboard bow, one astern and a fourth on her port quarter. The pre-arranged plan was followed, six Beauforts attacking from the starboard bow as *Prinz Eugen* turned to port, and the remaining Beauforts aiming at her starboard beam as she turned away from the first attack. All six aircraft of this second section went in low through the screen of destroyers, and the three leaders, including Archer (killed) and Birchley (captured),

⁸ F-Sgt C. Scouller, 402674; 59 Sqn RAF. Farm hand; of Nth Richmond, NSW; b. Brisbane, 17 Dec 1914. Killed in action 11 May 1942.

⁹ It is particularly difficult to apportion credit for success during these night attacks. An attack on the night 29-30 May by Hudsons of Nos. 59, 320 and 407 Sqn sank the Danish *Niels R. Finsen* (1,850 tons), the German Sperrbrecher *Veriato* (750 tons) and a German escort trawler *V.P. 1103* of 285 tons. Twelve RAAF men of 59 Sqn were lost up to 31 May 1942.

¹ Enemy records report the German *Klaus Fritzen* (2,836 tons) sunk by Hudson aircraft on this date near Stadlandet.

were shot down. The remainder of this primary wave then withdrew, having launched nine torpedoes at the enemy cruiser. Unfortunately, the second wave of fifteen Beauforts was misled by a position error, and incorrect time of origin in the broadcast signal sent to guide them to the target, and on making land-fall at Egero Island in Norway turned northwards away from their target. Worse, they were immediately assailed by twenty Me-109 fighters, and four Beauforts were lost.

The long-range fighters had been increasingly busy on a variety of tasks during this period. Early in April they had given what cover they could to ten Norwegian ships which, after sheltering in Swedish ports since April 1940, had then attempted to reach England. Aided by bad visibility, the ships cleared the Skagerrak on 1st April and made good progress, only to be heavily attacked by *Luftwaffe* units on the following day. Sergeant Windsor² of No. 248 Squadron, found a damaged ship being shadowed by an He-111, which he attacked from dead astern and shot down in flames into the sea. An hour later Rose, of the same squadron, destroyed an He-115. Routine tasks for the fighters were armed reconnaissances of Norwegian waters, and the superior Beaufighters of No. 248 were permitted to attack shipping encountered on these flights. Sergeant Hammond,³ on 20th April, and Sergeant Mueller,⁴ on 25th May, made damaging attacks on small coasters with cannon and machine-gun fire. The air defence of the Faeroe Islands had also reverted to Coastal Command on 27th April, but these patrols were mainly negative.

Long-range reconnaissance in Norwegian waters and on behalf of convoys to Russia was an onerous task for which No. 18 Group had only one and a half squadrons of Catalinas available. Accordingly, late in May, a Liberator of No. 120 Squadron of No. 15 Group made two reconnaissances of the Lofoten Islands. While returning from the second flight, the Liberator met three Me-109 fighters, and though one of these was destroyed, the Liberator was badly crippled with two engines out of action. One gunner had been killed and two other airmen injured, and the aircraft slowly lost height until one of the overheated engines remaining, failed; and the Liberator crashed into the sea and broke up. Pilot Officer Corkran⁵ and a wounded gunner released two dinghies into which they and the captain, navigator and flight engineer scrambled, and began to paddle for land just visible in the distance. They were in the dinghies for forty-eight hours and suffered severely from cold. The navigator died after thirty-six hours, and the others were too numb to undo the clothing of the gunner in order to dress his wounded arm, which gave him intense pain. At last they drifted on to an island, where for two days they hid in

² P-O G. P. Windsor, 404286; 248 Sqn RAF. Student; of Brisbane; b. Brisbane, 15 Oct 1920. Killed in action 25 May 1942.

³ W-O R. F. Hammond, DFM, 400585; 248 Sqn RAF. Insurance inspector; of Ballarat, Vic; b. Ivanhoe, Vic, 2 Aug 1914. Killed in action 1 Dec 1942.

⁴ W-O P. J. O. Mueller, 400480; 248 Sqn RAF. Advertising assistant; of Bendigo, Vic; b. Bendigo, 15 Aug 1914. Killed in action 1 Dec 1942.

⁵ F-Lt T. J. Corkran, MC, 404078. 120 Sqn RAF, 1425 Flight RAF, 511 Sqn RAF. School teacher; of Rosalie, Qld; b. Gympie, Qld, 6 Apr 1916. The MC was in recognition of Corkran's successful evasion.

a cave, all very weak and suffering from frostbite. They then decided to seek help, stumbled straight into the hands of a German patrol, but escaped by feigning fatigue, and stole a boat in which the survivors reached the mainland of Norway. Without compass or maps they made for the Swedish frontier, which they reached safely after thirty-one days of constant evasion.

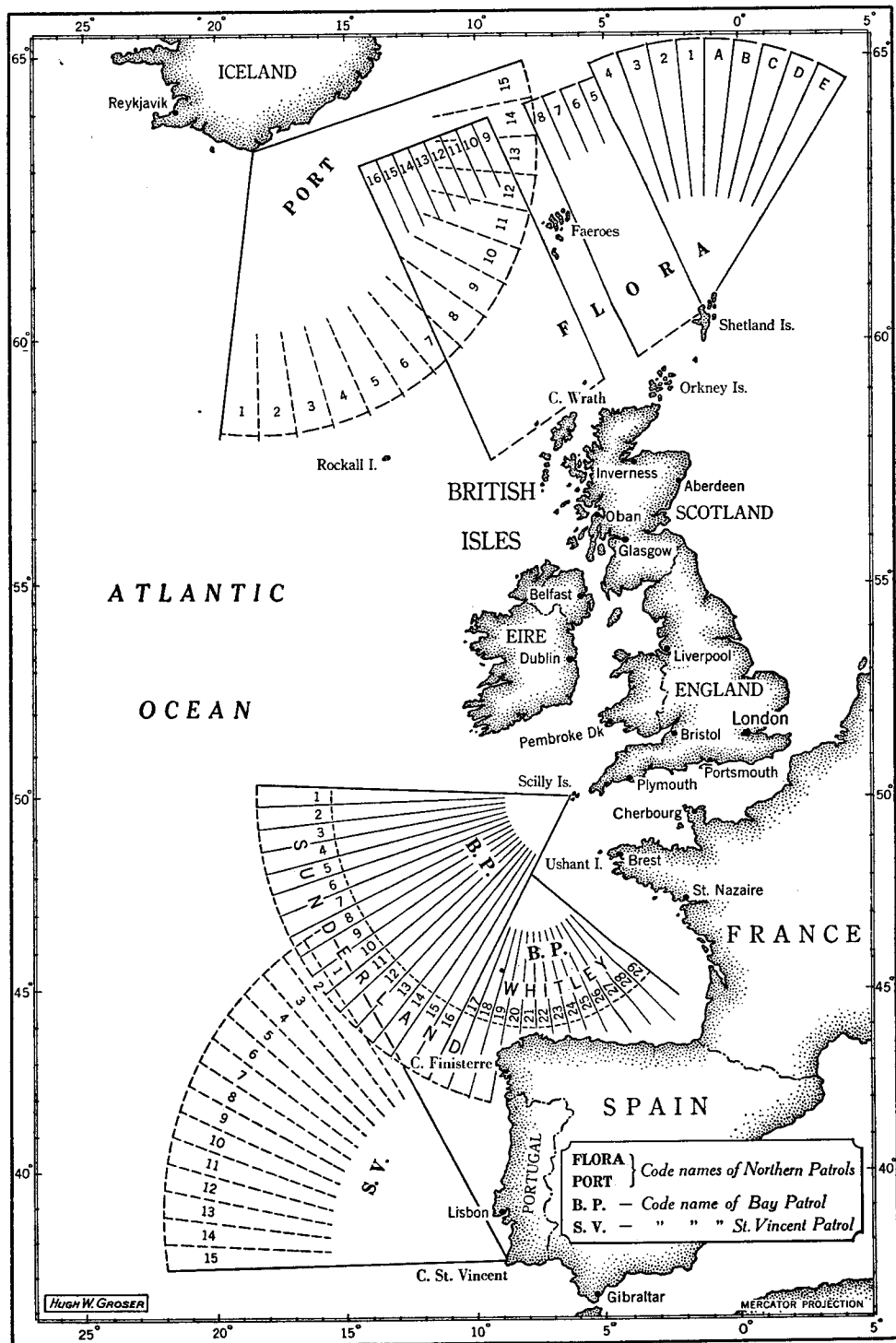
The effect of reinforcements had not been felt in Coastal Command when on 19th May Admiral King (chief of staff, U.S. Navy) tabled a memorandum on anti-submarine policy at a meeting of the Combined Chiefs of Staff in Washington. In brief King asserted that attacks on U-boats during passage "can be only moderately effective" and that American experience of direct defence of convoys had been disappointing. He considered that even should these anti-submarine measures become more effective, enemy resources were increasing so rapidly that they imperilled the contemplated large-scale movement of American troops to Britain. Accordingly he advocated heavy attacks against U-boat fitting-out yards and operational bases. When asked to comment on these views the British Chiefs of Staff agreed that it was vitally important to strike at building yards and bases and pointed out that this type of air action was being carried out. However, after instancing that the destruction of a U-boat at sea meant the loss to the enemy not only of a submarine but of a valuable trained crew, and that the current Bay offensive held great promise if it could be backed by more long-range aircraft, the British Chiefs of Staff stated their main policy:

While agreeing that the offensive against building yards is very important, we consider the air action most urgently required to deal with the immediate menace is a sustained and intensive attack against U-boats near their objectives, and on leaving and returning to their bases.

This statement of British policy was accepted in Washington as meeting the points raised by Admiral King.⁶ A further plea at this time from Coastal Command for intense bombing of the Gironde ports because it was unlikely to get sufficient long-range aircraft to make the offensive in the Bay really effective, was similarly not acted upon.

The squadrons on loan from Bomber Command began active operations at the beginning of June, and though the Whitley was by no means an ideal aircraft even with a thoroughly-trained crew and radar equipment (which these squadrons lacked) the density of Coastal Command patrols increased. Moreover to all engaged in the unremitting air patrols of Coastal Command, which too frequently had shown them nothing except sullen empty sea and lowering skies, the most heartening feature of June 1942 was the great increase in effective air attacks. The number of U-boats operating in the Atlantic was now estimated as sixty, and though their main operational areas were outside the range of aircraft based in the United Kingdom and they were remaining longer on patrol, all at some

⁶ The conditions of U-boat warfare in the western Atlantic and the apparently gloomy view concerning the American ability to defeat U-boats in their operating areas are discussed by Morison, Vol. I.



Anti-U-boat patrols, summer 1942.

time had to return to the Biscay ports for refitting and supplies. No. 19 Group now had nine squadrons concentrating on the Bay of Biscay, including No. 172 (Leigh light Wellington) Squadron which could not only search but strike accurately at night. Flying times twice topped 1,100 hours for a week's effort and half of the total Command operational flying for the month took place in this area, resulting in twenty-one sightings of U-boats of which fifteen were attacked.

The month began very well for Australians when Pilot Officer Handasyde⁷ of No. 53 made a promising attack on a U-boat sighted while he was flying one of the "Fan" patrols. At night, on 3rd-4th June, Pilot Officer Triggs,⁸ as second pilot, took part in an attack against the Italian submarine *Luigi Torelli* during the first operational sortie of a Leigh light Wellington; a second U-boat was also discovered during this flight, though it could be attacked only with machine-gun fire. Altogether, six sightings were made by No. 172 during its first month of operations. Interest then centred on a succession of attacks by the Australian Sunderlands. During a daylight patrol on 5th June, Flight Lieutenant Wood⁹ surprised an outward-bound U-boat west of Bordeaux, and by diving down at the greatly increased speed of 205 knots, he reached its position only twenty-five seconds after the U-boat crash-dived. Wood's depth-charges straddled the enemy line of advance some 130 yards ahead of the swirl, and one minute later the U-boat surfaced at a steep angle, bow-foremost while oil and air bubbles gushed to the surface. The bows of the U-boat dipped under as the stern rose high from the water, and the vessel then achieved trim with its bows awash and listing to port. During the next ten minutes, the Sunderland gunners aimed 2,000 rounds of machine-gun fire at the hull, upper deck and bridge structure, while the U-boat moved slowly in a figure eight, at first on its electric motors and then on its diesels. It finally submerged, heading eastward towards its base and trailing a pronounced oil streak.¹ Wood was now himself attacked by an FW-200, which approached four times during a running fight lasting one hour and a quarter. The Sunderland was repeatedly hit and holed by cannon fire, while the enemy kept out of machine-gun range. During the fourth attack, which was pressed to close range, the Sunderland's guns were able to bear and secured many strikes on the FW-200, which broke off the attack and disappeared eastward, flying low over the sea.

Two days later, at 7.12 a.m., Pilot Officer Egerton² sighted a submarine travelling eastwards at slow speed along the north coast of Spain, near Santander. He recognised it as Italian, and it made no attempt to

⁷ Sqn Ldr J. F. Handasyde, DFC, 400985; 53 Sqn RAF. Orchardist; of Wantirna, Vic; b. Ringwood, Vic, 14 Jan 1921.

⁸ F-Lt A. W. R. Triggs, MBE, DFC, 400500. 172 Sqn RAF, 23 Sqn. Bank clerk; of Elwood, Vic; b. Malvern, Vic, 23 Apr 1913.

⁹ W Cdr S. R. C. Wood, DFC, 250516. 10 and 461 Sqns; comd 41 Sqn 1944, 74 Wing 1945. Solicitor; of Caulfield, Vic; b. Melbourne, 28 Sep 1914.

¹ This was *U71*, a Type-VII submarine of 517 tons. It was seriously damaged and was forced to return to La Pallice.

² Sqn Ldr T. A. Egerton, DFC, 3932. 10, 461 and 40 Sqns, comd 107 Sqn 1945. Regular airman; of Williamstown, Vic; b. Coorparoo, Qld, 8 Apr 1914.

submerge, but opened fire with its main gun and lighter anti-aircraft weapons. Attacking out of the rising sun, Egerton dropped his depth-charges accurately, although the Sunderland itself was hit and two airmen were wounded. The submarine zigzagged at reduced speed, while Egerton shadowed it, and was joined shortly afterwards by Flight Lieutenant Yeoman³ in another Sunderland. The latter circled the U-boat and also attacked, the last two depth-charges in his stick exploding under the submarine, which appeared to eject a torpedo from its stern and then lay stationary. Both Sunderlands had sustained serious damage and were forced to return to Mount Batten, but the submarine, identified as the *Luigi Torelli* (damaged by Triggs earlier), was seen the next day beached in Santander with a large hole amidships and a heavy list to port.

A third success in the Bay came on 11th June, when Flight Lieutenant Martin⁴ badly damaged another U-boat imprudently surfaced within his patrol sector.⁵ This was *U105*, a Type-IX boat of 740 tons, which took refuge in Ferrol as the second unexpected visitor which No. 10 Squadron had forced on Spain within a week. The Bay area then lapsed into relative quietness during the latter half of the month, despite an ever-increasing intensity of flying. Outside Sunderland range, a large-scale enemy attack developed against a convoy homeward-bound from Gibraltar. Five ships were sunk before Liberators and Lancasters, swiftly brought down from Northern Ireland to Predannack, made three attacks around the convoy on 15th June and forced the U-boats to break off the action.

The Northern Transit area provided no excitement for Australians flying the anti-submarine patrols of Nos. 15 and 18 Groups,⁶ but an upsurge of U-boat activity was evident in the western Mediterranean. This resulted from the attempt to pass a convoy of six fast ships from Gibraltar to Malta, and at the same time, to fly Spitfires in to Malta from aircraft carriers which accompanied the convoy. The detachment of No. 10 remained at Gibraltar, to aid in preliminary patrols to disrupt enemy reconnaissance positions athwart the proposed convoy track. At 4 a.m. on 7th June, during one of these early preventive patrols, Flight Lieutenant Marks⁷ received radar indications which led him to the position of an

³ F-Lt E. St C. Yeoman, 473; 10 Sqn. Regular air force off; of East Camberwell, Vic; b. St Kilda, Vic, 10 Jun 1920. Killed in action 9 Aug 1942.

⁴ F-Lt E. B. Martin, 280651; 10 Sqn. Clerk; of Woodville Park, SA; b. Semaphore, SA, 5 Sep 1916. Killed in action 31 Jul 1942.

⁵ A conventional-type submarine on passage even at minimum submerged speed, had to surface for 4 to 5 hours in every 24 to ventilate the boat, replenish the batteries and top up high-pressure air bottles if it were to remain in full fighting order. Although this was frequently done at night some U-boat commanders accepted the risks of day surfacing and posted 4 men on lookout, with binoculars, placed back to back so that they scanned all avenues of approach. This watch was far more efficient than any visual watch from aircraft and usually ensured plenty of time for the U-boat to submerge before any attack could be made. In mid-1942, however, aircraft began to patrol within the cloud base and kept watch on Mark II A.S.V., a radar device to which the enemy at that time had no counter. Homing by this means and breaking cloud only when they were ready to attack, aircraft frequently surprised U-boats.

⁶ It was an extremely quiet month for Australians outside 19 Gp, and much satisfaction was expressed when towards the end of the month the Hudson sqns joined Bomber Cd in the "1,000 Bomber Raid" against Bremen on 25-26 Jun. Their precise target was the Deschimag Works and, as usual, 59 Sqn provided the greatest representation, 9 of its 12 Hudsons being captained by or containing Australians.

⁷ W Cdr R. W. Marks, 477. 10 and 41 Sqns; comd 107 Sqn 1944-45, 1 TAF Cd Post 1945. Regular air force off; of Semaphore, SA; b. London, Eng, 19 Sep 1916.

Italian submarine. The depth-charges fell thirty yards abeam as Marks dived into an impressive column of light-calibre gun fire, and as he climbed away, the submarine opened up with its heavy gun and damaged the Sunderland's starboard-outer engine. A lively gun duel then ensued between aircraft and submarine, before excessive vibration caused by the damaged engine made it expedient for Marks to return to Gibraltar. Later the same day, and some sixty miles farther east, Flying Officer Corrie⁸ of No. 202 Squadron, by skilful radar search in cloud, homed on an Italian submarine, possibly the one attacked above. Half his depth-charges "hung-up" in the first attack, but Corrie dropped these in a second run, just after the submarine submerged. He was rewarded by the sight of a rapidly-growing oil patch accompanied by foam and air bubbles over the position of the enemy. Despite these and other early successes,⁹ the passage of the convoy to Malta was hotly contested by enemy underwater, air and surface forces, and it suffered heavy losses. Some consolation came on 13th June, when Squadron Leader Burrage, acting temporarily as captain-instructor of No. 202, damaged another submarine after a battle similar to Corrie's.

Back in the Bay, Australian Sunderlands, not needed at Gibraltar, flew several anti-shipping sorties and it was noticed that enemy ships on the Bilbao-Bayonne iron-ore route were being escorted by destroyers, a welcome sign that air pressure was forcing the Germans to exert more and more effort in the defence of this trade. On 18th June two Sunderlands were sent to patrol round a threatened convoy, and Flight Lieutenant Judell¹ did invaluable work in directing the rescue of survivors from the sloop *Wild Swan*, which was well ahead of the convoy and had been attacked and bombed by thirty Ju-88's. The damage was so serious that she had to be abandoned. Unfortunately, Judell was shot down three days later, while on another air-sea rescue search for a missing Wellington. This was the first Sunderland lost by No. 10 Squadron in the air through enemy action in the twenty-nine months of its operation.

Anti-submarine warfare was necessarily in a state of flux, as any individual tactic of either side produced counter-measures or new methods of evasion, the first signs of which were usually first noticed by operational units. The overt threat, which recent Coastal Command successes had made to all U-boats crossing the Bay, now influenced them to proceed with even greater caution than previously, and led also to intense German air reaction. From Brest, Arado 196 fighters swept the northern half of the Bay and often flew interception patrols off the Scilly Isles; from Bordeaux long-range Ju-88 fighters gave escort during daylight to outgoing and home-coming U-boats, flying standard patrols when not thus occupied; from bases near the Spanish border single-engined fighters were disposed to prevent any disruption of the iron-ore traffic. All these German

⁸ F-Lt R. M. Corrie, DFC, 404170. 228 and 202 Sqns RAF, 43 Sqn; comd 112 Air-Sea Rescue Flight 1945. Clerk; of Clayfield, Qld; b. Sydney, 2 Sep 1920.

⁹ Catalina J/240 sank the Italian submarine *Veniere* off the Balearic Islands on 9 Jun.

¹ F-Lt M. L. Judell, 466; 10 Sqn. Regular air force off; of Millswood, SA; b. Jamestown, SA, 26 Oct 1917. Killed in action 21 Jun 1942.

aircraft mounted cannon, which could out-range the machine-guns of Coastal Command aircraft which, moreover, were themselves mostly large, slow and not very manoeuvrable in combat. The tendency, increasing from July onwards, of Ju-88 aircraft to patrol in sections of three and more, thus allowing attack from several angles at once, increased the hazards of Coastal Command crews. These were forced to rely chiefly on their own armament, though in August 1942 a Beaufighter squadron was added to No. 19 Group to give some measure of fighter protection.

On 1st July No. 461 was able to offer two Sunderlands for operational patrols, and before the end of the month it was at full squadron strength. Two Englishmen, Wing Command Halliday² and Squadron Leader Lovelock,³ were appointed as commanding officer and flight commander respectively, although, but for existing Air Board policy, suitable men could have been transferred from No. 10 to fill these posts. The aircrews themselves were relatively inexperienced, especially those who had been recruited from Bomber Command and not from operational training units or from men temporarily attached to No. 10, but all were intensely keen to emulate and if possible to surpass the fine reputation already gained by the original Sunderland squadron. Lack of experience, both in the air and on the ground, together with the ever-mounting enemy fighter opposition were serious handicaps to a unit so quickly thrown into the forefront of battle; but No. 461 commenced operations with one decided advantage. All the main technical aids for sinking U-boats; radar, Torpex explosive, the 25-foot setting for depth-charges, the Leigh light, and scientific patrol patterns had all been brought to bear. The Sunderland was the most powerful aircraft then regularly engaged in the area, and, in the coming battle, success or failure would depend primarily on the human element of resolute, pugnacious, watchful crews.

From Mount Batten the two Australian squadrons flew 850 hours during July and 857 during August without obtaining outstanding success against the main enemy. On 11th July Yeoman damaged a U-boat⁴ and three more were sighted that month in circumstances which precluded attack. August was an even more disappointing month, for though Brown of No. 10 on the 16th made a promising attack, six other U-boats were discovered but all escaped attack. Three of these were sighted by unarmed Sunderlands engaged on air-sea rescue duties. The presence of whales in the patrol area was a constant source of confusion at this time, and two were mistaken for U-boats and attacked. On 9th August a Sunderland of No. 461 attacked a British submarine owing to misunderstanding of the limits of a restricted bombing area;⁵ two hours later the Sunderland found a real U-boat, but it had no means of attacking.

² W Cdr N. A. R. Halliday, 26200 RAF; comd 461 Sqn 1942. Regular air force off; of Liphook, Hampshire, Eng; b. Condegalla, Ceylon, 9 Nov 1911. Killed in action 12 Aug 1942.

³ W Cdr R. C. O. Lovelock, DFC, 37817 RAF, 204 Sqn RAF; comd 461 Sqn 1942-43, 119 Sqn RAF 1943, 211 Sqn RAF 1945; W Cdr (Flying) 901 Wing RAF 1945. Regular air force off; of Plymouth, Devon, Eng; b. Hampstead, London, 7 Apr 1912.

⁴ This was *U162* a type-IXC boat of 740 tons.

⁵ Allied submarines crossing the Bay were protected by establishing a safe area along their mean line of advance. Details of these restricted areas were given to all aircrews before setting out on

In July six Lancasters of No. 44 Squadron were lent to No. 120 to compensate for Liberators withdrawn to the Middle East. A detachment of No. 61 (Lancaster) Squadron also operated for some weeks from St Eval but only a few Australians were included among the crews. However, on 17th July an R.A.A.F. second-pilot of No. 502 Squadron shared in the sinking of *U751* in the Bay of Biscay; and one night sighting was made during August by an Australian captain of No. 172 (Leigh light) Squadron, but during these two months the most promising Australian attacks were made in other areas. Sergeant Egan⁶ of No. 48 Squadron attacked a U-boat off Stadlandet in Norway on 21st July, and another one north-east of the Shetlands on 29th August. A strong force of U-boats had also begun to harry convoys south of the Cape Verde Islands. The three Coastal Command squadrons in West Africa were hard pressed to combat this menace, but on 27th July a Hudson captained by Flying Officer Swain⁷ of No. 200 Squadron damaged a U-boat which he saw surfacing in the path of the merchantman *Winchester Castle*. Even farther afield in the Caribbean Sea, August provided many incidents for No. 53, which had been sent to assist in defensive measures off the American coast. In July, eight R.A.A.F. captains and many more crew members accompanied the detachment of twenty Hudsons to Quonset, Rhode Island, but which, on 1st August, had been ordered southwards to Waller Field, Trinidad. On 16th August, Flight Sergeant Sillcock⁸ claimed to damage one U-boat,⁹ and Pilot Officer Kennard¹ attacked and drove another away from a convoy he was escorting. On 20th August, Pilot Officer Rickards² found and claimed to damage a large camouflaged U-boat,³ and Sillcock attacked yet another during an afternoon sweep on 27th August. While none of these attacks resulted in outright sinkings, the value of damage inflicted increased proportionately to the distance a submarine was away from its maintenance facilities. Even unsuccessful attacks were valuable in that U-boats rarely stayed long in areas where they were systematically hunted, but preferred to seek other spheres of easy sinkings.

In the absence of more suitable specialised aircraft, the Sunderlands in No. 19 Group still carried the burden of anti-shipping operations in the Bay of Biscay. To assist accurate bombing, all Sunderlands were armed with a mixed load of six depth-charges and two bombs, the latter

patrol. In this instance there appeared to be mutual navigation and procedure errors. Fortunately the submarine was not damaged.

⁶ F-Lt A. A. Egan, 401093. 48 Sqn RAF, 6 and 37 Sqn, 1 Comm Unit. Manager; of Elsternwick, Vic; b. Melbourne, 6 Oct 1912.

⁷ F-Lt J. F. Swain, DFC, 400607. 200 Sqn RAF, 531 Sqn USAAF, 23 Sqn. Clerk; of Caulfield, Vic; b. Melbourne, 11 Jan 1920. Killed in aircraft accident 6 Oct 1945.

⁸ F-Sgt R. R. Sillcock, 400840; 53 Sqn RAF. Dairy farmer; of Yinnar, Vic; b. Morwell, Vic, 26 Aug 1912. Killed in action 10 Nov 1942.

⁹ German records give no indication that this attack caused any damage.

¹ F-Lt R. W. Kennard, 402361. 53 Sqn RAF, 32 and 15 Sqn. Clerk; of Canberra, ACT; b. Malvern, Vic, 30 Nov 1920.

² F-Lt J. P. Rickards, DFC, 400422; 53 Sqn RAF. Salesman; of Melbourne; b. Bendigo, Vic, 31 Dec 1917.

³ German records fail to substantiate this claim although contemporary on-the-spot assessment was most enthusiastic.

being of more practical use against surface vessels. Opportunity for attack did not come, however, until 26th July, when both Flight Lieutenant Vernon of No. 10 and Pilot Officer Buls⁴ of No. 461 made determined attacks on a convoy, which they found in the far south-eastern corner of the Bay between Cape Machichaco and Cape Higer. Two days later Marks found two armed trawlers in this area, and after shooting down an Me-109 which attempted to intervene, he pressed home a determined attack, although the *Sunderland* itself was hit by heavy gun fire which tore a large hole in the hull, damaged two engines and set fire to a pyrotechnic signal, which filled the aircraft with smoke. This marked offensive spirit brought special commendation from Air Chief Marshal Joubert,⁵ but the risks of these operations, though gladly accepted, were not commensurate with the actual damage caused. A tragic reminder of this fact came when, in quick succession, Martin (30th July) and Yeoman (9th August) were sent out on similar duties, but were shot down and killed. The patrols were still necessary, however, as photographic reconnaissance indicated considerable activity in Biscay ports of ships suitable for blockade running to the Far East. On 1st August, a *Catalina* from Gibraltar had attacked a large Japanese submarine to the south-west of the Bay, which was thought to be carrying economic and technical advisers sent to implement an exchange of war materials between the Axis partners. Thus, on 18th August, when an *Altmark*-type tanker was reported in the outer Bay, aircraft of four squadrons were sent to hunt her. Lancasters of No. 61 Squadron scored one bomb hit, and Brown of No. 10 attacked three times after nightfall. In his last dive down to 600 feet Brown saw at least one of his bombs explode just behind the bridge of the tanker. Because of its greater experience in ship recognition, this crew had been sent to clarify the position when Whitleys, searching for the tanker, also found an *Ermland*-class freighter westward-bound. After the *Sunderland* attack the tanker turned southwards towards Ferrol, but at a later date was located in La Pallice; the freighter also returned to Bordeaux once it realised it had been detected by our air patrols.

Anti-shipping activity in the North Sea had been modified during July, so that aircraft of No. 59 were employed principally as flare-dropping and reconnaissance aircraft for No. 415 Squadron R.C.A.F., which was equipped with Hampden torpedo bombers. Australian pilots—Charlton, Pilot Officer Moran⁶ and Pilot Officer Barson⁷ in particular—had several engagements before No. 59 was withdrawn, on 17th August, for con-

⁴ F-Lt B. L. Buls, 403129. 10 and 461 Sqns. Agrostologist; of Glen Innes, NSW; b. Petersham, NSW, 18 Aug 1917. Killed in action 21 Jan 1943.

⁵ "Please convey my warmest congratulations to the Captain and aircrew of C/10 for their engagement on 28/7. It discloses throughout a high standard of teamwork and discipline to which every member of the crew contributed in full. The handling by the Captain of the aircraft in action and during the return in a severely damaged condition calls for the highest praise. The presence of mind of the Navigator and Second Pilot undoubtedly saved the aircraft. The accurate shooting of the three gunners led to the destruction of the Me-109. It is a fine example of coordinated effort, resource and flying ability"

⁶ F-Lt H. A. L. Moran, 400479; 59 Sqn RAF. Grocer; of Toorak, Vic; b. Armadale, Vic, 1 Jul 1919.

⁷ Sqn Ldr N. Barson, DFC, 400457; 59 Sqn RAF. Clerk; of Kew, Vic; b. Broken Hill, NSW, 7 Jan 1921.

version to long-range Liberator aircraft. In No. 18 Group operations were at a low ebb, for No. 455 was busily training in torpedo tactics and made only two shipping searches during these two months; the Hudsons were flying anti-submarine patrols and, of the long-range fighter squadrons, one was withdrawn to re-arm with Beaufighters and No. 248 left for Malta at the end of July to give special support to another attempt to run a convoy from Gibraltar to Malta. The first offensive raid of this detachment was on 11th August, when Elmas and Decimonannu airfields in Sardinia were strafed with cannon fire. Of 10 aircraft burnt out and 22 damaged in this raid, Mueller was credited with one SM-79 destroyed and 3 damaged; and Hammond with one destroyed and one damaged. Close escort to the few ships of the convoy which penetrated the Sicilian Narrows was given on 12th and 13th August; and the Beaufighters were then quickly trained in a new tactical formation for attacking Rommel's supply convoys. On 21st August, 9 cannon-firing Beaufighters of No. 248, with 6 bomb-carrying Beaufighters of No. 227 Squadron, escorted 9 torpedo-Beauforts against an enemy tanker, protected by five destroyers, off the Dalmatian coast.⁸ The Beaufighters were required to distract the attention of ship-borne gunners away from the Beauforts and also to engage enemy aircraft, which were expected to intervene in large numbers owing to the superlative importance of fuel oil to the *Africa Corps*. In the ensuing engagement Hammond claimed as victims one Piaggio 52 and a Ju-88, while Mueller shared in the destruction of a Ju-52. After some routine security patrols the crews of No. 248 left their aircraft at Malta and returned to England at the end of the month.

In the main area of Coastal Command activity, Australians on anti-submarine patrol were attacked nine times during July by enemy aircraft. In addition to Marks' successful encounter with an Me-109, Pilot Officer Manger⁹ of No. 461, on 30th July, shot down one of three Arado 196 fighters which intercepted him off Ushant. Long daylight hours and the absence of cloud cover over the Bay made it comparatively easy for enemy aircraft to detect our patrols; and in seven known combats during August two aircraft captained by R.A.A.F. men were shot down. The first occasion was on 3rd August, when two Witleys of No. 51 Squadron, captained by Sergeants Brown¹ and Butcher,² were outward-bound to fly adjacent "fan patrols". Two Arado 196's shot down Butcher and then attacked Brown, but his gunners damaged one of the fighters, both of which flew off towards Brest while Brown continued with his patrol. Mounting losses from enemy opposition, and a noticeable increase in engine failures on obsolescent types of aircraft now being pressed into service over the Bay, led to a corresponding need for special air-sea rescue facilities. At this

⁸ This type of concerted action was a forerunner of the wing strike tactics which were introduced into Coastal Cd operations during 1943.

⁹ F-Lt F. V. Manger, 401072. 10, 461 and 40 Sqns. Salesman; of Echuca, Vic; b. Echuca, 11 Dec 1913.

¹ P-O A. H. S. Brown, 404867; 51 Sqn RAF. Clerk; of Maryborough, Qld; b. Maryborough, 18 May 1915. Killed in action 16 Oct 1942.

² Sgt C. S. Butcher, 403314; 51 Sqn RAF. Clerk; of Turramurra, NSW; b. Willoughby, NSW, 30 Aug 1919. Killed in action 3 Aug 1942.

time, when surface craft could not normally penetrate the Bay and when the two "deep-search" Coastal Command air-sea rescue squadrons were fully employed in the North Sea, searches were undertaken as necessary by normal patrol squadrons, and in distant or difficult waters the only practicable way of effecting rescue was by using flying-boats to land and pick up survivors. On 8th July, Halliday found and rescued the crew of a Whitley forced down in the sea because of engine failure. On 6th August, *Buls* alighted safely in the Bay to pick up survivors from one of two Whitleys shot down the previous day. Yeoman was cooperating in this search and also found dinghies, but when he alighted on the sea he discovered they were empty. Three days later Yeoman himself failed to return from patrol, but widespread searches by aircraft of several squadrons failed to provide any clue to his fate.

This success of *Buls* was followed closely by an incident which highlighted many aspects of operations in the Bay at that time. On 12th August Triggs of No. 172 was flying a night anti-submarine patrol when one of his engines failed and he had only time to broadcast an S.O.S. before he was forced to put down the Wellington in a very rough sea. The automatic dinghy release failed to operate but Triggs prised open the stowage with his hands and got all his crew aboard, where they sat wet and overcome by the nausea of sea-sickness until dawn, when they began to scan the empty horizon. After a few hours a Whitley appeared overhead and dropped a spare dinghy and a Thornaby Bag.³ The supplies were recovered but the dinghy was too far up wind and drifted away, although it was later to play a significant role. Confidence in rescue now rose, for now that their position had been checked the Wellington crew could banish the fear of drifting helplessly, and this elation was heightened during the evening when a Sunderland was seen searching on the horizon. One of the pyrotechnic distress signals was fired from the dinghy and immediately the flying-boat banked and flew overhead. This Sunderland was B/461 piloted by Halliday.

Halliday found the dinghy almost lost in waves; a 25-knot wind and heavy swell made the sea very dangerous, but after jettisoning his depth-charges and 500 gallons of petrol he determined to make a landing. Triggs saw the Sunderland touch down on the first wave and then execute a long bounce over three waves and stall into the sea. The tip of the starboard wing broke off and the starboard-outer engine screamed madly and broke into flames. Metal sheets rent apart as the Sunderland broke its step, and a cross-wave then hit the starboard bow dragging the damaged wing under water. The aircraft nosed very quickly into the sea and sank. Triggs could not see any survivors, but actually six men had managed to scramble through the badly-warped

³ During 1940-41, improvised survival kits containing medicines, food, water and clothing, were prepared at most Coastal stns. The two best packs—the Thornaby Bag and the Bircham Barrel, became standard rescue equipment and retained the name of the stns responsible for their introduction.

escape hatch, Flying Officer Laurenti⁴ going back to rescue the navigator, Flying Officer Watson,⁵ who had lost consciousness. One dinghy was released and inflated but it burst as the survivors clambered in. Their only hope now lay in the derelict dinghy which they had seen while circling, and Watson volunteered to swim for it. The heavy seas severely taxed his strength as he had concussion, and though he managed to reach the dinghy, he then collapsed; when he regained consciousness his comrades had all disappeared, and were never seen again.

Meanwhile, the Wellington crew, conscious of the great sacrifice which had just been made in their interest, silently prepared for their second night in the stormy seas. A small hole was found in the floor of the dinghy, but was plugged successfully. The men slept fitfully, two still racked with sickness and a third suffering from salt water sores: all were wet, cold and uncomfortable. During the morning of 13th August Triggs saw several aircraft searching but the only one to locate the dinghy, a Whitley of No. 77 Squadron R.A.F., was shot down by enemy fighters. A large fishing vessel appeared and passed within 400 yards, but despite their privations the castaways made no signal; for while immediate rescue might give relief, it would certainly mean that they would become prisoners of war. They preferred to wait and to hope that friendly help would arrive on the third day.

On the morning of 14th August the Wellington crew had their first meal consisting of a biscuit, a malted-milk tablet, chocolate and a small mouthful of water; they did not feel hungry but decided they ought to eat something. Despite their hopes, all they saw that day was a shark, which had to be frightened away lest it rupture the thin skin of the dinghy. On Friday, 15th August, a small sail was fashioned, and though no aircraft were seen the survivors grimly determined to make some progress northwards towards England. Damp mist and showers and waves splashing over the dinghy not only increased their discomfort but made them realise that their chances of being located were dwindling. These conditions persisted throughout Saturday until nightfall, when torrential rain began suddenly and continued until day-break; the crew sat in silence, and (worse still) the wind sprang up hard from the north. At this nadir of their fortunes, one of the crew awoke to see two dark shapes on the far side of the dinghy, and deeming them to be bollards, thought they must have been blown into a river or harbour; they turned out to be the heads of two of his comrades.

Sunday, 17th August, broke clear and hopes mounted again. At noon a Beaufighter circled and informed them of a survivor in the other dinghy, which, now that the seas had abated, they could see in the distance. Triggs pulled up the sea anchor and they all paddled hard, but it took five hours to cover the 1,000 yards separating them from Watson, who was taken aboard their dinghy and made as comfortable as possible. At dawn next

⁴ F-O D. Laurenti, 407749. 461 and 10 Sqns. Chemist; of Brighton, SA; b. Mt. Gambier, SA, 17 Jan 1917. Died after aircraft accident 13 Aug 1942.

⁵ Sqn Ldr J. H. F. Watson, 402193. 228 Sqn RAF, 461 Sqn. Sugar technologist; of Sydney and Innisfail, Qld; b. Sydney, 14 Apr 1916.

day three Hudsons and two Beaufighters appeared to mount guard over them, and shortly afterwards, H.M. Launch *Q180* came into view. Three Arado 196's were seen circling on the northern horizon, and as soon as the launch was in hailing distance Triggs asked that the Hudsons be warned of four FW-190's seen earlier. This was done and the Hudsons left in close formation as soon as the airmen were safely aboard *Q180*, which then headed northwards in company with three other naval launches. Almost immediately two FW-190's dived to attack the relief ships, and, characteristically, Triggs, who had artillery training, asked if there was a gun he could man. While the other airmen went below to sleep, he and his navigator, Pilot Officer Badham,⁶ who throughout the six days of ordeal had given him excellent support in rallying his crew, now stood by a 3-pounder gun. The survivors were landed that evening at Newlyn in Cornwall.

In all, Triggs had sighted seventy-seven aircraft, twenty of which were enemy, and many more had been searching for him and his crew. The story of this rescue was told and retold in Coastal Command messes, its lessons having a salutary effect on all aircrew. It taught the vital necessity of good crew discipline and emergency drill when an aircraft is forced for any reason to descend on the sea; the value of a prompt and accurate S.O.S. signal; the need for real leadership when faced by solitude and a lingering death; above all, the lesson of never giving up faith in the air-sea rescue arrangements. The rescue of this Wellington crew cost the lives of seventeen aircrew and two valuable aircraft and diverted the efforts of hundreds of men temporarily from the offensive against the enemy; but it created a legend of heroism both of seekers and sought, which fired the imagination and determination of all who might one day find themselves in a similar plight.

During September 1942 the main weight of the U-boat offensive remained in waters beyond the range of land-based aircraft; and while Coastal Command waited for its five squadrons then re-arming on Fortresses and Liberators, it could do little else than press as weightily as possible on the transit U-boats. Squadrons of Bomber Command which had helped No. 19 Group during the summer now reverted to their own duties. To compensate for this loss, Bomber Command provided from No. 10 (Whitley) Operational Training Unit a steady stream of crews, each of which spent some time on Biscay patrols before they were posted to bombing squadrons. Of more serious import was the tendency for U-boats when detected by radar search through cloud to be in the act of diving before being seen visually. This implied that the enemy had perfected listening devices which warned them of aircraft using Mark II radar. Nevertheless, some successes were gained in all waters.

Despite the desire to retain both R.A.A.F. Sunderland squadrons at the same base, Mount Batten could not hold two complete squadrons

⁶ F-Lt C. Badham, DFC, 403467. 172 Sqn RAF, 23 Sqn. School teacher; of Casino, NSW; b. Bankstown, NSW, 22 Dec 1919.

as well as the maintenance facilities of No. 10, so, reluctantly, No. 461 moved early in September to Poole. This base was not fully developed for operational use and for some time No. 461 continued to make all-night sorties from Mount Batten. Though nominally separated, the two squadrons cooperated on the same tasks and were often out in company, flying between them 720 hours during September and making nine sightings which resulted in eight attacks on U-boats. On 1st September, three Sunderlands, R/10, U/10, and A/461, armed not with depth-charges but with semi-armour-piercing bombs, were sent out on shipping-strike duties, when Wood in U/10 discovered a surfaced Italian submarine. He attacked, but his four bombs, although they fell close to the submarine, did no damage as they were fused to detonate only with a direct hit. Pockley in R/10, made similar attacks with two and then one bomb, besides twice making diving attacks to silence the enemy gunners. Buls had joined the other two Sunderlands, but while they were circling and arranging a concerted attack they were all ordered to resume their original duty. A fourth Sunderland armed with depth-charges was sent to hunt this submarine, but could not find it.⁷

No further sightings came until 9th September, when by radar indications Pockley homed on a U-boat through cloud, sighted it visually and then climbed back into cloud to gain a better attacking position. When he broke cloud for the second time, the U-boat was fully surfaced one and a half miles ahead of the Sunderland which was, at 400 feet, in an excellent position to achieve full surprise. Pockley now made an important decision, for, as there were men on the bridge and deck of the U-boat, he estimated that it could not crash-dive immediately. At this time conflicting theories were held concerning the lethal effect of a 250-lb depth-charge against surfaced targets, and so, preferring to make his attack while the U-boat was submerging, he coolly climbed astern to 900 feet and circled. As soon as the enemy crew left the bridge preparatory to diving, Pockley approached and straddled the U-boat abaft the stem, three depth-charges falling on either side. The explosions from this model attack were particularly heavy and brought huge air and oil bubbles gushing to the surface. The Sunderland then flew away to adopt baiting tactics,⁸ but the damaged U-boat did not expose itself to a second attack.

Other attacks in the Bay were made by Egerton and Flying Officer Thorpe⁹ of No. 10 during September, and on 30th September No. 461 achieved its first major success when Pilot Officer Cooke¹ heavily damaged

⁷ A Wellington of 304 Sqn found it next morning and badly damaged it. It took refuge in Santander, Spain, and was identified as the Italian *Reginaldo Giuliani*.

⁸ Baiting tactics were general in mid-1942. An aircraft dropped only part of its depth-charges during the initial attack, then if the enemy was submerged flew away to return later in the hope that a damaged U-boat seeing the sky clear would surface and make off at its best surface speed. Sunderlands thus at this time dropped 6 depth-charges, retaining the other 2, or 2 bombs, as a "second barrel".

⁹ F-Lt W. P. Thorpe, 407014. 10, 11 and 20 Sqns. Bank clerk; of Adelaide; b. Adelaide, 17 Jul 1920.

¹ W Cdr H. G. Cooke, DFC, 403860. 461 and 10 Sqns. Agent; of Balgowlah, NSW; b. Sydney, 8 Jan 1914.

an outward-bound U-boat 700 miles west of La Pallice.² Again the enemy showed bitter air opposition to these Bay patrols and Australians had five combats early in the month, one resulting in the loss of a No. 461 Sunderland on 1st September. To aid the anti-U-boat aircraft, Beaufighters flew interception patrols in the eastern Bay, and these were greatly strengthened when No. 248 Squadron came into the line again, at Talbenny in No. 19 Group, on 25th September. Hammond damaged a Ju-88 off Brest on 27th September, but earlier in the month on 17th September Flight Sergeant Hill³ of No. 235 Squadron had been shot down on one of these patrols, when his section of Beaufighters attacked both an FW-200 and an armed trawler simultaneously.

September 1942 also saw a steady stream of newly-commissioned U-boats attempting to reach the Atlantic.⁴ No. 48 Squadron moved to Sumburgh and its Hudsons flew intensive patrols in the Shetlands-Faeroes Channel. On 2nd September Pilot Officer Hornby⁵ made a promising attack in this area and another attack on 26th September, though this second U-boat had managed to crash-dive and escaped with only a severe shaking. The best Australian attack was on 18th September, when Pilot Officer Knauer⁶ was patrolling south of the Faeroes. The enemy had been preparing to surface and had not attained full buoyancy when it must have sighted the Hudson, for it was again diving when Knauer straddled its underwater position with his depth-charges. A large piece of superstructure was flung high in the air by the explosion, and large air bubbles and a wide oval-shaped oil patch appeared later on the surface.

The West African area was quiet this month, but in the Caribbean Sea the Hudsons of No. 53 continued to fly intensive patrols against an ever more cautious enemy. The toll of constant operations of an emergency nature was paid heavily during September by the loss of two Australian captains and their crews while returning from patrol, but Rickards had the satisfaction of damaging seriously a U-boat which he caught unawares while patrolling off the mouth of the Orinoco River. Nearer home and operating from Gibraltar, Flight Lieutenant Walshe⁷ became, on 14th September, the first R.A.A.F. man to achieve, unaided, a definite and indisputable sinking of an enemy submarine. Walshe, in a Sunderland of No. 202 Squadron, had been sent into the western Mediterranean to patrol an area north-east of Algiers, from which suspicious radio transmissions had lately been heard. At 2.30 p.m., when the Sunderland was

² The result of this attack was long in doubt for there was no visible confirmation of damage. In 1945, however, it became known that the U-boat had been forced back to port for lengthy repairs.

³ F-Sgt D. Hill, 416023; 235 Sqn RAF. Clerk; of Prospect, SA; b. London, Eng, 21 Aug 1918. Killed in action 17 Sep 1942.

⁴ We now know from German records that 30 U-boats successfully made this passage during each of the months of Aug, Sep and Oct.

⁵ F-Lt R. H. Hornby, AFC, 403053. 48 Sqn RAF, 2 and 38 Sqns. Clerk; of Sutherland, NSW; b. Dorrigo, NSW, 17 Aug 1912.

⁶ F-O L. G. Knauer, 405180. 48 Sqn RAF, 2 Sqn. Bridge inspector; of Brisbane; b. Brisbane, 26 Nov 1915. Killed in aircraft accident 12 Jun 1943.

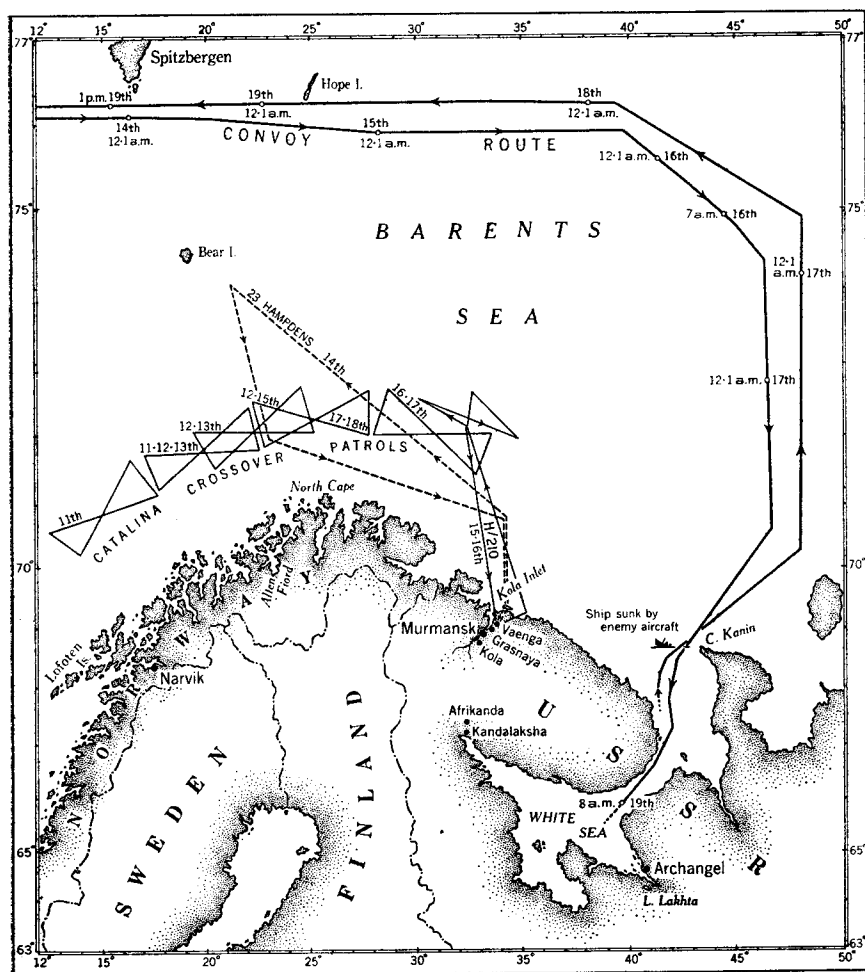
⁷ F-Lt E. P. Walshe, DFC, 400361. 209 and 202 Sqns RAF. Salesman; of Camberwell, Vic; b. Melbourne, 25 Mar 1918.

flying at 800 feet, he sighted a grey-green submarine which made no attempt to submerge as the aircraft closed the range. Walshe then made a deliberate approach astern of the submarine so that the enemy heavy deck gun could not bear, and though he met opposition from cannon-armament, this slackened when his front guns fired, and it ceased altogether as the aircraft swept over and the Sunderland tail turret, from very short range, directed a long burst into the conning tower. Only four of the six depth-charges selected actually fell, and this mechanical failure might easily have made the attack abortive but so accurately had Walshe timed his release that two fell to starboard just ahead of the conning tower and a further two alongside the submarine's bow. The enemy vessel lost all way and oil gushed forth into the sea, and after half an hour, during which he circled overhead, Walshe saw the submarine sink bow first, leaving forty survivors in dinghies or swimming in the water. This submarine was later discovered to be the Italian *Alabastro*.

Anti-shipping strike activities along enemy-held coasts fell away at this time largely because there were no suitable aircraft with which to press a successful offensive, but Coastal Command put into operation a plan to give special protection to Russian convoys during September 1942. Two squadrons of Hampden torpedo bombers were to be stationed in Russia, either to deter Norway-based enemy warships from leaving harbour or to attack them at sea should they sail against our convoys. A small detachment of P.R.U. Spitfires was to watch German fleet anchorages, while No. 210 (Catalina) Squadron, also temporarily based in Russia, was to fly outer-warning and close-escort patrols to the convoys while they passed through the threatened areas. As both the convoy going to and that homeward-bound from Murmansk were to sail simultaneously these Catalinas were to be the vital link in allowing the switching of naval escorts from one to the other as they passed on the fringe of the zone of greatest danger. The actual Russian expedition thus consisted of 32 Hampdens, 13 Catalinas and 4 Spitfires, but in fact the passage of *PQ-18* and *QP-14* employed more than a hundred aircraft drawn from fourteen squadrons based in Russia, Iceland and the United Kingdom. Their 279 sorties comprised 2,290 hours flying and were very successful. Most of the outward convoy reached Russia safely, and the homeward-bound convoy lost no ships in the Russian area and escaped more lightly than usual in the Atlantic.

This effort was a tremendous strain on Coastal Command resources. The ground serviceing party sailed on 13th August and arrived ten days later at Vaenga in Kola Inlet. There they were subjected to enemy air raids while they prepared a base and liaison headquarters for the torpedo bombers and photographic Spitfires. On 4th September 16 Hampdens of No. 455 and 16 of No. 144 Squadron left Sumburgh, but only 23 reached Afrikanda or other Russian bases. The Australians lost three aircraft, two of which crashed in Norway and one which force-landed in Russia and became a total loss, though the latter crew was saved. The Catalinas main-

tained continuous anti-surface ship patrols from 11th September, but although the "pocket-battleship" *Admiral Scheer*, the heavy cruiser *Hipper*, the light cruiser *Köln* and four destroyers moved up to Alten Fiord, they did not in fact make any offensive sortie, and the battleship *Tirpitz* remained at Narvik. The apparent air threat thus succeeded, and the Hamp-



Covering operations for the Russian convoys, 14th-19th September 1942.

dens would not have flown but for a chapter of accidents which caused uncertainty as to enemy dispositions on the night of 13th-14th September, when *PQ-18* was steaming north of Bear Island, hemmed in by the ice pack and thus peculiarly vulnerable to air attack. Communications failed with Lake Lakhta, where most of the Catalinas were based, and the one Catalina at Grasnaya was delayed from taking off until dawn, when the

photographic sortie found Alten Fiord covered with cloud. As any reports from the delayed Catalina would be received too late for the Hampdens to make an interception, Wing Commander Lindeman⁸ decided to use all his available torpedo bombers for a reconnaissance in force on the morning of 14th September. The twenty-three Hampdens accordingly went out to the farthest possible position on the probable track of a German force trying to intercept the convoy, and then turned back until they reached the Catalina patrol area. This seven and a half hour sortie produced no sighting, and on return to base, despite an air attack, the Hampdens were refuelled and stood by at short notice. However, afternoon Spitfire reconnaissance revealed the enemy ships still at Alten Fiord, and Catalina patrols sufficed until *PQ-18* arrived safely in the White Sea on 19th September. The Hampden party remained at Vaenga instructing Russian pilots, to whom the aircraft were handed over on 12th October; Lindeman's party finally left Russia by sea on 23rd October.⁹

There had been four R.A.A.F. navigators with No. 210 Squadron and two with No. 144 Squadron for this expedition but only one of them experienced any incident. On 23rd September, Sergeant Langdon¹ was navigating Catalina U/210 on a protective patrol around the homeward-bound convoy when his captain discovered and sank *U263*.

⁸ Gp. Capt G. M. Lindeman, OBE, DFC, 37302 RAF. 166 and 102 Sqns RAF; comd 455 Sqn 1941-43, 78 OTU RAF 1944-45. Regular air force off; of Sydney; b. Sydney, 1 Dec 1913.

⁹ An abridgement of Lindeman's interesting "Russian Diary" appears as an appendix to J. H. W. Lawson, *Four Five Five, the Story of 455 (RAAF) Squadron*, (1951), pp. 160-95.

¹ F-Lt N. J. Langdon, 402743. 210 and 190 Sqns RAF, 42 Sqn, 112 ASR Flight. Medical technician; of Naremburn, NSW; b. Austinmer, NSW, 20 Nov 1919.

CHAPTER 12

EXPERIMENTS IN BOMBING TECHNIQUE

AT the beginning of 1942 bombing policy was the cause of much concern and criticism, not only within the Air Ministry, but also in the press and the House of Commons. It was in this general state of unease, at a time when general war strategy was going badly and the bomber seemed the only means for striking directly at the enemy, that two previously divergent streams of thought were brought together to form the broad river of bombing action. This continued unchecked for two years, and then—such was its impetus while in spate—it was directed only with great difficulty into fresh channels. The two tributaries were concentration on area bombing and new methods of navigation and target identification. The selection of large centres of population as the main target was the final pragmatic decision consequent upon the apparent failure of the previous campaign against transport targets, but the underlying policy was one of necessity rather than virtue. The new methods of navigation then being developed as urgent measures were originally intended, however, to remedy the obvious failure of bombers to seek out and destroy small targets by night; and were thus primarily intended to check the deviation of bombing policy from “spot” to “extended” target systems. They did not come into being before influential opinion both inside and outside the Air Ministry had virtually already decided upon area bombing; and in the event they became complementary rather than competitive to this trend.¹

During the winter of 1941-42, “Gee”, the first of a number of radio and radar instruments designed to overcome the basic problem of navigation within Bomber Command, had been tested in air exercises over England.² Gee had given such successful results that, although only a few sets were immediately available, the Air Ministry decided to base the coming spring bombing offensive on tactics involving its use for target identification and marking. Its anticipated range of accuracy was 350 miles from Mildenhall, and, therefore, included the dense enemy industrial region of the Ruhr. In the expectation that before all bombers could be equipped with the instrument the enemy would have found means of jamming transmissions, Bomber Command was instructed to make the maximum use of this “revolutionary advance in bombing technique” without delay. On 14th February the previous list of enemy transport targets was revoked, and factories and industrial areas were stipulated as the main targets to be attacked with the help of Gee. Four primary industrial

¹ This excerpt from an air staff paper dated 23 Sep 1941 may be taken as a typical example: “The ultimate aim of the attack on a town area is to break the morale of the population which occupies it. To ensure this we must achieve two things; first, we must make the town physically uninhabitable and secondly, we must make the people conscious of constant personal danger. The immediate aim is, therefore, twofold, namely, to produce (i) destruction and (ii) the fear of death.”

² Gee was a semi-radar device by which a navigator could fix his position at any moment by measuring the time between the arrival of short-wave pulses broadcast from a chain of ground stations.

areas within the range of Gee—Essen, Duisburg, Dusseldorf and Cologne—were listed for the main weight of attack. Three alternative targets of lesser importance (Bremen, Wilhelmshaven and Emden), within the range of Gee, and eleven alternative targets (Hamburg, Kiel, Lubeck, Rostock, Berlin, Kassel, Hanover, Frankfurt-on-Main, Mannheim, Schweinfurt and Stuttgart), outside the range of Gee, were also to be bombed in favourable weather. A number of precise targets, key factories in otherwise secondary industrial districts, were also indicated, but area bombing “to focus attacks on the morale of the enemy civil population and in particular of the industrial workers” was firmly stated as the paramount task of Bomber Command.

Previously, though individual raids had achieved success, no lasting industrial damage had been done in Germany, which could call on almost unlimited labour and resources from the occupied countries for repair work; and, indeed, enemy industrial output for war purposes then stood higher than ever before. Now, however, by making German towns “physically uninhabitable and the workers conscious of constant personal danger”, it was intended to strike a blow at enemy potential even more serious than the loss of factories which, in any case, would proceed side by side with the offensive against morale. French factories known to be working for the enemy, especially those producing armoured vehicles and engines, were also detailed for night attack, although, in their case, care was to be taken that civilian property was not damaged. In addition, the main strategic bombing force was to be called on, as required, to assist in combined operations, or in attacking targets of importance to the war at sea.

A fortnight after this far-reaching statement of R.A.F. bombing policy was received, Air Marshal Harris³ became Air Officer Commanding-in-Chief, Bomber Command, replacing Air Marshal Peirse;⁴ and to Harris fell the task of making the projected offensive a reality. The difficulties were tremendous, for the expected large expansion of Bomber Command had not taken place; enemy air and ground defences were now greatly strengthened in a wide belt running from Denmark to northern France; and Gee, however optimistically its trials were hailed, was untested in action, and was available for only a few aircraft of No. 3 Group. Inevitably, therefore, the next few months were devoted to experimental tactics designed to make the best use of existing forces. At the same time a satisfactory method was sought not only of carrying a maximum number of bombs through the enemy defences, but, when over the target, of ensuring that they were dropped accurately to cause the most damage. Practically all the raids mounted during this period added something to the general pattern of development, although many failed to create significant damage.

³ Marshal of the RAF Lord Harris, GCB, OBE, AFC. AOC 5 Gp RAF 1939-40; Dep Chief of Air Staff 1940-41; Head of RAF delegation to USA 1941; AOC-in-C Bomber Cd 1942-45. Regular air force offr; of Rhodesia; b. Cheltenham, Eng, 13 Apr 1892.

⁴ Air Chief Marshal Sir Richard Peirse, KCB, DSO, AFC. Dep Chief of Air Staff 1937-40; Vice Chief of Air Staff 1940; AOC-in-C Bomber Cd 1940-42, India 1942-43; Allied Air C-in-C SE Asia Cd 1943-44; b. 1892.

Although an unchallenged policy had thus been formulated and both operational research and industry were then providing much help with tactics and means of attack, the campaign itself developed slowly.⁵ The main retarding factor was the size of the bomber force regularly available during the spring and summer of 1942. Over-all war strategy demanded that five squadrons be transferred to Coastal Command and another five to the Middle East, while additional attachments of other squadrons for a month or two were made to the former. It is true that in hitting power the Whitleys and Hampdens released to Coastal were becoming unsuitable for coordinated raids at increasingly higher altitudes, but the loss of five squadrons of Wellingtons (then the backbone of the bomber force) was more serious; in any case the loss of trained ground staff was a heavy burden. However unwelcome, this setback was only a temporary one and mere statistics, which show that the strength of the night-bomber force declined from 740 to 570 between January and July, give a false impression of real capabilities. Whitleys and Hampdens were in any case to be eliminated and squadrons of Nos. 3 and 5 Groups re-equipped with four-engined aircraft. Thus in fact, while the medium-bomber force sank from approximately 600 to 300 during this period, the heavy bombers increased in number from 140 to 280, and because several squadrons were out of the line for re-equipping at that time, the proportion of four-engined bombers was soon to increase still further.⁶ The bomb-lift of the Command naturally increased even during the first six months because each heavy bomber could carry more than double the load of a medium bomber against any type of target. Furthermore the Command soon found that the Lancaster (which was basically an emergency re-design of the Manchester fuselage with four instead of two engines) was by far the most satisfactory aircraft for weight carrying, range and altitude potential, yet produced. Already by July 1942 there were as many Lancasters as Halifaxes (the next most powerful type) in operation and thereafter they predominated until the end of the war.

Two R.A.A.F. squadrons, Nos. 455 and 460, were among the forty-seven squadrons of bombers available in February to prosecute this new offensive. This apparent representation, however, in fact obscured the true nature of Australian effort within Bomber Command, because aircrews continued to be scattered among squadrons in all groups. No. 455, which had finally settled in at Wigsley, a satellite airfield of Swinderby, had been complimented for achieving, during January, the highest proportion of attacks against primary targets of any squadron in No. 5 Group. There had been, however, only seventeen R.A.A.F. aircrew members with the squadron during that month, and the first all-Australian crew did not operate until 21st February. However, energetic protests from Overseas

⁵ On the one hand, by such conceptions as concentrated bomber streams against one target each night instead of dispersed raids, and on the other by the provision of new incendiary and high-capacity bombs of ever-increasing weight which were suitable for general rather than localised destruction.

⁶ Aircraft available for operations by Jan 1943 totalled 190 Wellingtons, 100 Stirlings, 170 Halifaxes and 270 Lancasters. Heavy bombers then comprised 74 per cent of the total force.

Headquarters, and the long-delayed graduation of men from training units, raised the Australian aircrew complement of No. 455 to 57 by the end of February and to 76 by the end of March. Australian ground crews, helped by English non-commissioned officers, had also, by this time, reached a high degree of technical efficiency. At the very moment, however, when there were high hopes of a truly-Australian squadron in Bomber Command, No. 455 was withdrawn from the line on 19th April.

Wing Commander Lindeman was ordered to take two experienced and ten junior crews to Leuchars in Scotland to form a torpedo-strike squadron within Coastal Command. All available Australian ground crews and many aircrews were thus lost to Bomber Command. At the same time, two experienced crews (each of four men) were transferred to each of Nos. 44 R.A.F. and 408 R.C.A.F. Squadrons, and nine complete crews went to No. 50 Squadron R.A.F. at Swinderby. These Hampden crews could only be employed within No. 5 Group, and the Australians among them were not suitable for transfer to No. 460, which was experiencing a similar struggle to achieve homogeneity of personnel. Although formed round a nucleus of one flight of No. 458 during November 1941, this Wellington squadron could not operate immediately, as the airfield projected for its use had no serviceable winter runways. In January 1942, when it transferred from No. 8 Group to No. 1, and became established at Brighton, an out-station attached to Holme-on-Spalding Moor, there were only thirty-eight Australians among the aircrews. It was expected that, with the transfer of No. 458 to the Middle East, a large number of men trained on Wellingtons would be available in England for No. 460, but this did not happen. In April there were still only 38 Australian aircrew members, and the number fluctuated in subsequent months, falling to 27 during July, although it rose appreciably to 66 (50 per cent of requirements) by September, when the squadron was withdrawn for re-arming with four-engined bombers.

Between February and September 1942 the total number of Australians flying with Bomber Command varied greatly from month to month, and at times from week to week, as squadrons were temporarily attached to Coastal Command or ceased operations while converting to new types of aircraft. The monthly tally of men actively engaged on operations rose steadily, however, from approximately 250 in February to 450 in September. During the summer months, indeed, No. 50 Squadron R.A.F. with an average of seventy, held more Australian aircrew members than No. 460, the only R.A.A.F. squadron then operating. Other squadrons, notably Nos. 12 and 49, at this period included in their ranks up to forty Australians, while practically every unit had at least one.

This lack of order in the organisation of Australian air effort had diverse causes, many of which were stubbornly disregarded both by Australian authorities and by administrative officers of Bomber Command. By mid-1942, fifteen months had elapsed since the Memorandum of Agreement, concerning the concentration of Australians into their own units, had been signed. Of the eight medium-bomber squadrons projected

under this scheme only three had in fact been formed and, of these, two had been diverted to other employment by the changing emergencies of war. The over-all general need, however, was still for a large expansion of Bomber Command and thus a considerable proportion of Australians continued to be fed into operational training units in that command. With only one R.A.A.F. squadron in existence, and that receiving crews only from training units employing Wellington aircraft, the vast majority of Australians were necessarily shared by other squadrons. Even though as many Australians as possible were sent to No. 27 Operational Training Unit at Lichfield,⁷ in Staffordshire, no definite move had been made to recognise it in any way as a unit primarily feeding Australian squadrons. Nor was there any certainty that the various categories of Australian aircrew would arrive in proper sequence or matched numbers. The inevitable result was that only a minority of completely-Australian crews could be formed and the vast majority, even from this unit, consisted of men from several nations. This situation was further complicated early in 1942 by a radical change in the composition of Bomber Command crews, and this threw out of gear the original plan of E.A.T.S. requirements. Firstly, because the training to a satisfactory standard of two pilots per crew threw too great a strain on aircraft resources at operational training units, it was reluctantly decided to provide only one pilot for all bomber types. This created a temporary surplus of Australian pilots, who could only be used to head crews of other nationalities. At the same time, through the urgent need to base bombing operations on meticulous navigation, Harris proposed that an additional crew member—an “air bomber”—should be trained so that navigators could concentrate entirely on keeping to a true course and time table on each operation. For the time being these air bombers could come only from the ranks of basically-trained navigators, so that the total result of these two innovations was to change the previous ratio of requirements of pilots and navigators from 2:1 to 1:2. Again, with the advent of radar devices used by navigators, the importance of wireless operators as such declined, so that it was no longer held desirable to have two wireless air gunners, even in crews for four-engined aircraft.⁸ One wireless air gunner was to be replaced by a straight air gunner, while at the same time an additional gunner was required for the mid-upper turret in heavy bombers. A flight engineer was also needed for heavy bombers with which it was proposed to re-arm the majority of Bomber Command squadrons.

The requirements of Bomber Command for aircrew during 1942 were thus:

- (a) Medium bombers—1 pilot, 2 basic-trained navigators, 1 wireless operator, 1 gunner.
- (b) Heavy bombers—1 pilot, 2 basic-trained navigators, 1 wireless operator, 2 gunners, 1 flight engineer.

⁷ Approx 160 Australians were trained at Lichfield during 1941. On 1 Apr 1942 the pupil population consisted of 180 RAAF, 132 RAF, 26 RNZAF and 24 RCAF men.

⁸ It became a general practice during 1943 for wireless operators to help the navigator by operating some of the radar aids. In principle, however, a full wireless-telegraphy course for all gunners was wasteful because this skill was relied on to a much lesser degree.



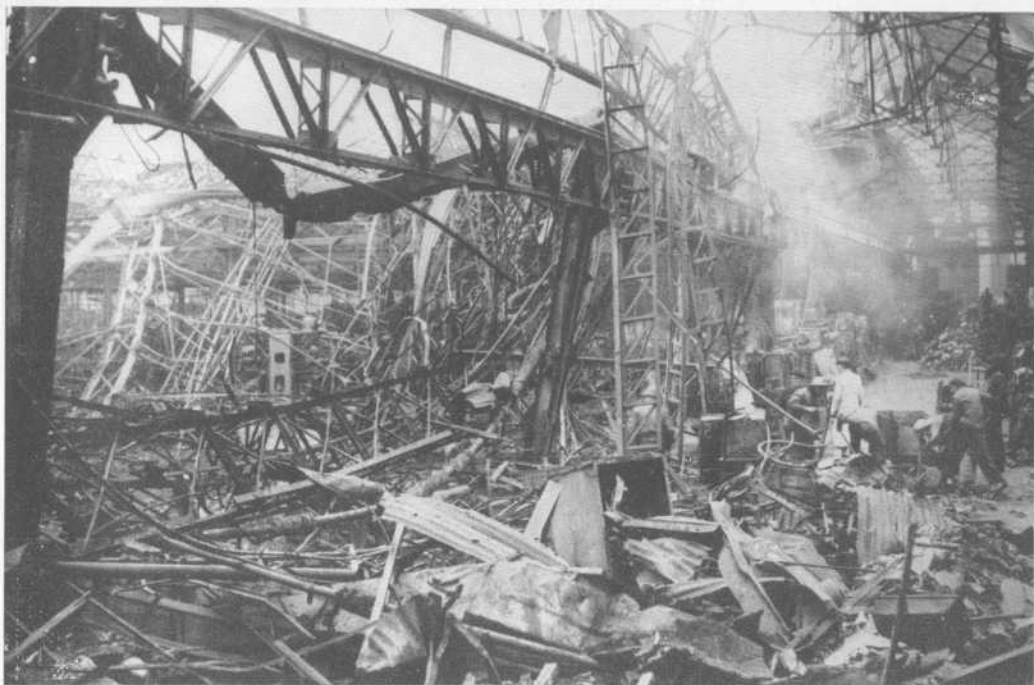
(R.A.A.F.)

Depth-charges from a Sunderland of No. 10 Squadron captained by F-Lt H. G. Pockley explode about the German ship *Munsterland* (6,408 tons) in the Bay of Biscay on 15th May 1942. The R.A.F.-type roundel painted on the hatch cover was displayed to deceive the attackers. The vessel, although damaged, eventually reached Bordeaux.



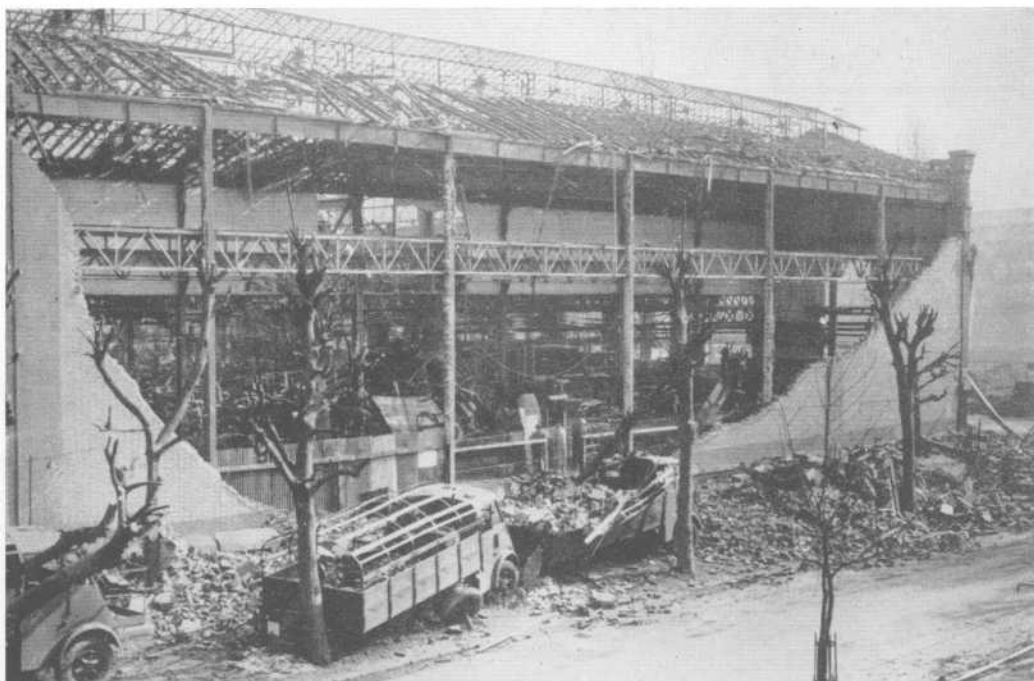
(R.A.A.F.)

To help meet the crisis caused by German U-boat successes off the eastern seaboard of the United States, Coastal Command in 1942 transferred No. 53 Squadron R.A.F., armed with Hudsons, to assist the American Navy. Aircraft of this squadron are shown during the transfer from Miami, Florida, to Norfolk, Virginia, in November 1942.



(French sources)

Bomber Command's first major success was obtained on the night of 3rd-4th March 1942 in a raid against the Renault motor works in Paris. French workers clear up the debris in the small-pressings shop.



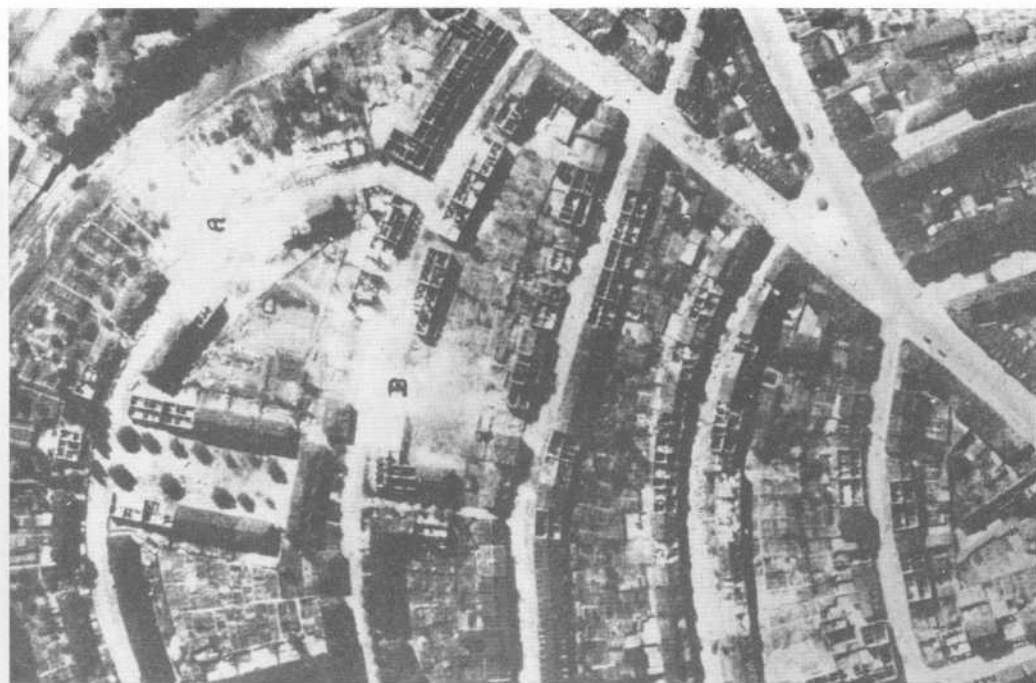
(French sources)

Completed trucks (for the German and Italian armies) wrecked in the collapse of a brick wall in the motor-repair shop at the Renault works.



(Air Ministry)

Rostock, a northern German port, received a heavy attack by Bomber Command on 28th-29th March 1942. The new fire-raising tactics burnt out a large section of the business area to the north of the river.



(Air Ministry)

Two 4,000-lb high-capacity blast bombs exploded in a residential area of Saarbrücken in western Germany during the night of 29th-30th July 1942. The points of impact can be seen to the left centre of the photograph.



(Air Ministry)

Dusseldorf, with its heavy industries and inland port on the River Rhine, after the Bomber Command raid during the night of 31st July-1st August 1942. For the first time large numbers of 4,000-lb high-capacity blast bombs were used in conjunction with incendiaries. Smoke drifts across the river from fires in dock-side warehouses.



(Air Ministry)

A similar attack against Mainz during the night of 11th-12th August produced a large fire which burnt out the centre of the town.

At the same time, Bournemouth was overflowing with trainee aircrew from overseas although the R.A.A.F. complement dropped markedly with temporary cessation of drafts from Australia because of the difficulty of providing convoys during the early months of war in the Pacific. The actual R.A.A.F. strength at No. 3 Personnel Reception Centre at the end of January was:

Pilots	Observers	Wireless operators	Air gunners
114	27	64	12

Irrespective of the needs of other commands,⁹ and apart from juggling with men already posted to operational training units, it thus appeared that only twelve all-Australian medium-bomber crews could possibly be formed on the new model. It was likewise clear that probably more than fifty crews would result with possibly only one Australian member. Nor, unfortunately, was the intake of Australians from Canada and Rhodesia during the next three months likely to redress this situation. These totalled:

Pilots	Observers	Wireless operators	Air gunners
294	113	101	20

There was also firm opposition from Australians trained as observers and wireless operators to any misemployment (for so it seemed to the individual) of them as air bombers or gunners, simply to achieve national crews. Many preferred to await a posting in their true category irrespective of the composition of their crew. This passive resistance was bolstered up by the failure of the Australian Air Board to reach a speedy decision concerning the new training requirements. It was not until 27th November 1942 that Overseas Headquarters was informed that the air bomber had been adopted as a separate mustering within the R.A.A.F. Other men, however, impelled by the desire to reach squadrons as soon as possible, made no demur concerning their employment as air bombers, but in practice this had little effect in raising the number of all-Australian crews because in general operational training units attempted to spread evenly the available flying talent of each class intake, with scant regard to nationality.

With positive centrifugal tendencies in action, and with no effective counter organisation, it was inevitable that Australians would be scattered among many crews and many squadrons. This dissemination was so marked that No. 460, although it attempted as far as possible to get crews containing a high percentage of Australians, inevitably had to accept men of other nationalities with whom the Australians were crewed. This situation could only be redressed by firm, prompt decisions by Australian authorities on the spot in England, and by day-to-day policing within the commands by liaison officers who were fully aware of existing and future R.A.A.F. requirements. In practice, however, there were no liaison officers

⁹ Fighter Cd was taking relatively fewer pilots than previously, thus creating a surplus for Bomber Cd. Coastal Cd had also adopted one-pilot crewing in most landplanes with a consequent greater demand for navigators, and also now demanded a greater proportion of air gunners to man its new Fortress and Liberator aircraft.

in the operational commands, while Overseas Headquarters had to refer all innovations and matters of principle to the Air Board for approval. This time lag in adjusting R.A.A.F. policy and procedure to the changing needs of the Royal Air Force inevitably resulted in emergency decisions, confusion, and even at some levels, a less sympathetic cooperation in the satisfaction of Australian aspirations. It certainly prevented bold planning for the final achievement of the main aim—a truly-Australian air contingent—because a long overdue ruling on any one anomaly merely clarified the original position, but did little to correct the difficulties that had since arisen contingent on failure to make a prompt decision in the first instance.

The ramifications caused by this delay are well illustrated in Bomber Command by the problem (which also affected Coastal Command) of the supply of flight engineers for flying-boats and four-engined aircraft. This requirement had been forecast in October 1940, and in March 1941 the duties of flight engineer were defined¹ and a suitable training sequence instituted for technical ground staff wishing to qualify for such employment. At this stage, No. 10 Squadron in Coastal Command was the only Australian unit directly affected, and Wing Commander Knox-Knight had already made emergency provisions to train flight engineers within his own resources. Early in February he had further recommended that three sergeants and three corporals of No. 10 be classified as Fitters IIE (Flight Engineer)—but the recommendations were not carried through at that time. Knox-Knight now requested that the new R.A.F. arrangements be extended to No. 10, but there was no reply from Australia so that, as late as October 1941, Australian airmen had not the same chance of remustering as R.A.F. men.

In January 1942 one Australian serving with No. 53 Squadron and two serving at No. 51 Operational Training Unit were recommended by their commanding officers for training as flight engineers. As no policy had been laid down, a ruling was requested from Australia and, meanwhile, on 14th January the following cable was received from the Air Board:

Agree to general application of Air Ministry Order A190/41 to RAAF personnel with proviso that airmen trained as flight engineers be granted *acting* rank of Sergeant *only* whilst borne against authorised establishment as members of aircraft crews.

No reference was made to Empire Scheme personnel and this cable was accepted as the reply to Knox-Knight's query of the preceding March. Accordingly, No. 10 was authorised to promote to acting sergeant, while flying as regular members of crews, all men who had been trained as flight engineers and who had qualified for the air gunner flying badge. Applications from men of No. 456 for training as flight engineers were refused at this time by Overseas Headquarters which ruled "EATS personnel not eligible". The Air Board agreed during April that Empire Scheme ground staff, in limited numbers, could be trained as flight engineers, but

¹ Air Ministry Order No. A190/41.

the Air Ministry was advised that these men should be told that they were remustering to a trade for which there was no R.A.A.F. equivalent, and that they must agree in writing to accept the decision of the Air Board regarding their status on cessation of attachment to the R.A.F. Thus in May 1942, with No. 461 Squadron due to form immediately in Coastal Command, and No. 460 to re-arm soon on Halifax aircraft, an initial number of forty men were required urgently. By June 150 Australians had applied for training as flight engineers, but little progress was made because conflicting views were held as to whether this was indeed a ground or air mustering. If flight engineers remained ground staff, then Overseas Headquarters had no authority to permit remusterings to a category for which there was no Australian equivalent. If they were aircrew members, not only was the category lacking, but Australian policy demanded the reversion of individuals to the rank of aircraftman, second class, on commencement of training. In June Air Vice-Marshal McNamara (deputy air officer commanding R.A.A.F. Overseas Headquarters) recommended to the Air Board that the R.A.A.F. adopt essential R.A.F. categories, because, apart from Nos. 460 and 461, several *Article XV* squadrons, yet to form, would likewise employ four-engined aircraft.

No further clarification resulted, and during August, it became necessary for the Air Ministry to authorise a considerable reduction in the length of training courses for the forty Australians actually accepted by that date so that they could reach squadrons without further delay. A last-minute decision to equip No. 460 with Lancasters upset even these arrangements, so that on 25th September, when it had converted to four-engined aircraft, No. 460 still had only one Australian flight engineer. The others intended for this unit were posted to Halifax squadrons for which their training equipped them. Even the September definition by the R.A.F. of flight engineers as aircrew, and the collateral recognition of this position by the Air Board on 27th November, did not solve the question because ever-increasing requirements continually outpaced the halting and cautious Australian policy. Authority was given to train extra men for three projected squadrons—No. 462 (Halifaxes)², No. 463 (Catalinas) and No. 467 (Lancasters)—and also to provide three replacements each month. No. 463 Squadron, however, was not in fact formed at this time; and the men earmarked for it and trained on Catalinas, like those on Halifaxes, were redundant to purely Australian requirements and went to other squadrons. Thus, by April 1943, although over seventy Australian flight engineers had been trained the actual position in the *Article XV* squadrons was then:

	Establishment	Strength	Deficiency
No. 460 Squadron . .	34	7	27
No. 467 Squadron . .	34	3	31
No. 461 Squadron . .	8	7	1
	—	—	—
	76	17	59
	—	—	—

² This sqn was to be formed in the Middle East and the men were to be chosen and trained there.

This unhappy position was by no means solely the result of Australian tardiness in recognising actual requirements. Bomber Command was equally culpable in that it made no real effort to channel Australian flight engineers to R.A.A.F. squadrons. In a typical instance Leading Aircraftman Forster,³ a Fitter IIE, was accepted in August 1942 for training as one of the first flight engineers for No. 460. On 16th October, however, he was posted to No. 106 Squadron R.A.F. Overseas Headquarters was too remote to prevent continual infractions of this nature, and only a liaison officer within Bomber Command, armed with authority to police the crewing-up process at operational training units, could have achieved more nearly the Australian ideal of a compact national grouping.

Many Australians were chosen as suitable for employment on four-engined aircraft before any R.A.A.F. squadron was so equipped, and this further militated against any close aggregation of Australians.⁴ Through casualties, interposting and withdrawal for training purposes, the number of Australians differed greatly, because crews containing them might or might not be detailed by commanding officers. While it is impossible to give constant reference to these individuals, the general Australian story may again best be told by describing the operations of the compact minority in Nos. 455 and 460, since these squadrons joined in the more important raids during the spring and summer of 1942.

The main difficulties confronting Bomber Command could not be solved singly in rotation, for there was an urgent need to continue bombing, even by unsatisfactory methods, without waiting for an ideal technique. There is thus no strict chronological development, and the raids undertaken during this period may best be divided according to the five main target systems: French factories; Baltic and North Sea Ports; the Ruhr and Rhineland; cities in south-west Germany; and cities in central and northern Germany—each of which presented a separate problem. Before detailing the methods adopted and the degree of success attained against each group, it is necessary to refer briefly to the subsidiary tasks of Bomber Command. Nos. 455 and 460 Squadrons continued in March and April 1942 to dispatch inexperienced crews mainly against lightly-defended French ports, or to drop leaflets over Lille and Paris exhorting French workers to refrain from making war munitions for Germany. These activities were then replaced by an intensive program of mine-laying, by crews not required for the main bomber force raids.⁵ No. 455 had always participated in mine-laying sorties, which previously were restricted to squadrons of No. 5 (Hampden) Group, but all groups were now ordered

³ F-Lt F. A. Forster, DFC, DFM, 10427. 106 and 83 Sqns RAF. Electric welder; of Cheltenham, Vic; b. Brunswick, Vic, 1 Aug 1910.

⁴ Another centrifugal factor was pointed out on 20 Feb 1942 by the acting AOC-in-C Bomber Cdn in a letter to the Air Member for Personnel: "the real snag to filling Dominion squadrons with Dominion aircrew is that OTU's have been directed to pick out their most promising pupils for training and transfer to the Middle East . . . Dominion candidates furnish over 50 per cent of these pupils and therefore are lost to the Dominion squadrons in this country."

⁵ Nuisance raids were hereafter conducted mainly by the OTU's, which also supplied many crews for ten major raids between May and Sep.

to perform this duty, and the number of mines laid off enemy-occupied coasts increased enormously. Besides replacing the initiation bombing raids, mine-laying was sometimes ordered as the main effort of a squadron on nights when it could be spared from the strategic offensive, as reference to Table No. 4 shows.

TABLE NO. 4

R.A.A.F. MINE-LAYING SORTIES

	Total Force		RAAF Force			Mines laid	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Mar 7- 8	17	8	455	9	7	8	1	—
Mar 12-13	26	21	455	3	3	21	—	—
Mar 23-24	17	14	455	2	2	29	—	—
Mar 24-25	35	30	455	4	4	59	—	—
Mar 25-26	38	26	455	6	6	26	1	—
Mar 26-27	36	30	455	3	3	59	2	—
Mar 27-28	18	13	455	4	4	13	3	—
Mar 29-30	20	16	455	5	5	37	2	—
Apr 2- 3	30	26	455	10	10	31	2	1
Apr 4	21	2	455	8	—	2	—	—
Apr 8- 9	24	17	455	2	2	36	—	—
Apr 12-13	20	17	455	5	4	27	—	—
Apr 15-16	11	9	455	4	4	25	—	—
Apr 16-17	21	15	455	1	1	23	2	—
Apr 19-20	51	32	455	3	2	71	2	—
Jun 11-12	91	82	460	9	9	218	4	—
Jun 18-19	65	52	460	12	12	148	1	—
Jun 21-22	56	49	460	12	12	123	1	1
Jun 26-27	39	36	460	12	12	65	—	—

TABLE NO. 4—*continued*.

R.A.A.F. MINE-LAYING SORTIES

	Total Force		RAAF Force			Mines laid	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
Jun 29-30	7	7	460	7	7	14	—	—
Jul 6- 7	42	26	460	10	8	58	2	—
Jul 12-13	55	44	460	12	12	143	2	1
Aug 4- 5	45	35	460	10	9	77	2	1
Aug 5- 6	58	53	460	9	9	198	1	—
Aug 16-17	56	46	460	4	4	141	2	—
Aug 18-19	9	9	460	3	3	18	—	—
Aug 20-21	60	45	460	2	2	94	7	—
Sep 7- 8	45	39	460	3	3	72	—	—

When the War Cabinet, in February 1942, authorised night bombing of French factories, it took great pains "to emphasise . . . that the primary object of these operations is the total destruction of the industrial plants as an indication of the fate which awaits those industries in occupied territory which continue to work for the enemy. It is recognised that incidental loss of life to French workers and civilian employees must to some extent be unavoidable, but much of the value of the attacks will be lost and our prestige and goodwill among the French population will suffer if a large number of French civilians are killed, while the target we are attacking is not decisively damaged". Bomber Command was thus required to bomb a relatively small target with far greater accuracy than had hitherto been achieved, either by day or night.

The Renault motor and armament works at Billancourt, a suburb of Paris, was chosen as the first target, and the raid executed on 3rd-4th March 1942 became one of the landmarks in the development of Bomber Command. Because of the need for careful planning and coordination to avoid any danger of indiscriminate bombing, an over-all flight plan was evolved for the 235 aircraft detailed for this raid. Previously groups and squadrons had arranged their own timing and routeing, and there had been a tendency to prolong attacks for hours for sheer nuisance value. Now the object was to bring all bombers over the target within a minimum of time to deal a concentrated blow. This would swamp the defences and

light too many fires for the defenders to douse immediately, so that some would take firm hold and create permanent damage. A flare technique was to be adopted by leading aircraft manned by very experienced crews, and the following aircraft were to bomb only when they had visually identified the specific aiming point.

No. 460 was not called upon and only five very experienced crews from No. 455 took part, being led by Lindeman. Great secrecy was maintained at Wigsley while preparing for this sortie, and only pilots and navigators attended the careful briefing. The whole force reached Paris as arranged and attacked, in excellent visibility, by moonlight, further aided by 4.5-inch reconnaissance flares released directly over the target. Opposition from anti-aircraft fire was slight, and there were few searchlights to dazzle the pilots and bomb aimers during their approach. All the Australians reported no difficulty in identifying the target and all claimed direct hits with their bombs, after descending to the lowest level that smoke from existing fires would permit (between 3,000 feet and 1,500 feet). A total of 462 tons of bombs was dropped by the 75 heavy and 160 medium aircraft dispatched, and one-third of the Renault works was destroyed and one-third severely damaged. Some damage, fortunately slight, was caused outside the target area, but political reactions to the raid were uniformly favourable as the Renault works were, in France, an outstanding symbol of collaboration with Germany.

The raid of 2nd-3rd March favoured, but did not prove, the new policy of concentrated bombing on a rigid time-table, and by the new flare technique employing a large proportion of incendiary bombs, to destroy by fire rather than by blast.⁶ In its results it was the most successful operation yet mounted, but Paris was poorly defended, close to England, and bombing conditions were almost ideal. It was the extension of this experience to raids on Germany that was finally to establish an effective strategic-bombing technique. Meanwhile, smaller raids continued at intervals on other important French targets. On the night of 2nd-3rd April No. 460 sent three of its Wellingtons in a force of fifty aircraft to attack the Matford works at Poissy. Conditions were again good and opposition slight, so that visual identification and low-level bombing were possible, resulting in severe damage to the factory.

The same degree of success was not attained, however, on 29th-30th May, when seventy-seven aircraft, including four Wellingtons of No. 460, were dispatched against the Gnome and Rhone, Thomson Houston, and Goodrich factories at Gennevilliers, also a suburb of Paris. Weather was bad along the route, and although visibility over the target was good due to large breaks in the overcast, much heavier opposition was met from guns and searchlights. Consequently the general height of bomb release was between 8,000 feet and 4,000 feet with an appreciable loss

⁶ The operational research section had recommended concentration in Nov 1941. This development went hand in hand with Gee as it was only made possible by accurate navigation, and the accuracy of navigation was much increased by Gee.

of accuracy. In previous raids of this series only one aircraft had been lost by the entire attacking force on each occasion, but now six failed to return. Two Australian Wellingtons were shot down, a third failed to locate the target and returned to base, while Pilot Officer Brill,⁷ the only pilot from No. 460 known to attack, flew through heavy anti-aircraft fire during his approach. His bomb-release unit was damaged and this caused a 1,000-lb bomb to hang up, although the remaining bomb load fell. Brill had come down very low and inspected his aiming point from 1,500 feet before making this determined attack, undeterred by damage to his hydraulic system and the fact that his rear turret was out of action. The return journey was hazardous, for the weather remained severe, and the Wellington flew badly as the bomb doors could not be closed, but Brill successfully made a landing at an emergency airfield in England.

The success of these attacks led the Air Ministry, on 25th May, to draw up a further list of eight industrial targets in Belgium, Holland, Denmark and Norway. Again, on 20th July, three further French targets were stipulated—the Schnieder works at Le Creusot, the Citroen works at Paris and the Gien ordnance depot. The proximity of all these targets to congested built-up areas, and the preoccupation of Bomber Command with the main offensive against German industry, in effect precluded further large-scale night attacks, though some of these targets were later attacked by light bombers in daylight, and a special force of Lancaster bombers made an experimental day attack on Le Creusot.⁸ This raid took place on 17th October 1942, at a time when no Australian squadron was operating. A substantial number of Australians serving with Nos. 44, 49, 50, 97 and 207 Squadrons were, however, engaged on this attack. Flying Officer Grant⁹ of No. 49, assisted by the bomb aimer, Pilot Officer Astbury,¹ navigated the leading aircraft, and on his painstaking accuracy largely depended the successful timely arrival of the force over the target.² Squadron Leader Moore³ led one flight of No. 50, which included the crews earlier transferred from No. 455, and to which many other Australians had since been posted. The Lancasters left England in clearing weather, and employing a round-about route over the Bay of Biscay, they reached Le Creusot before enemy ground or air defences could be brought fully into operation. Low-level, unhurried bombing

⁷ W Cdr W. L. Brill, DSO, DFC, 402933. 460 and 463 Sqns; comd 467 Sqn 1944. Farmer; of Grong Grong, NSW; b. Ganmain, NSW, 17 May 1916.

⁸ The suggestion that Le Creusot should be attacked came originally from Bomber Cdr itself. Night attack was ruled out because the factories were in the centre of built-up areas and there was little chance of identification either by direct observation or timed run from an unmistakable pinpoint. Only when a sufficient force of Lancasters was available could a heavy attack in daylight at such long range be considered feasible.

⁹ Sqn Ldr A. S. Grant, DSO, DFC, 404765. 455 Sqn, 50 Sqn RAF, 420 Sqn RCAF, 49, 35, 156 and 139 Sqns RAF. Clerk; of Salisbury, Qld; b. Inverell, NSW, 21 Jun 1913.

¹ F-Lt C. K. Astbury, DFC, 400897. 49 and 617 Sqns RAF; RAAF Cdr Bombing Ldr 1945. Railway porter; of Maryborough, Vic; b. Redbank, Vic, 19 Jun 1911.

² "The leading squadron, and particularly W Cdr L. C. Slee and his navigator in the leading aircraft, had to do the main work of navigation; the navigators of other squadrons had been ordered to check their position from time to time, but if nothing went wrong, to follow No. 49 Squadron." W. J. Lawrence, *No. 5 Bomber Group, R.A.F.* (1951).

³ Sqn Ldr P. B. Moore, DFC, 43290 RAF. 50 Sqn RAF, 455 Sqn, 61 Sqn RAF. Regular air force offr; of Pyramid Hill, Vic; b. Pyramid Hill, 12 Jul 1914.

caused heavy damage in the armament and locomotive works before the bombers withdrew safely. Moore encountered no fighters and saw only a few light-gun posts in action. Indeed startled birds were the main danger, four Lancasters of No. 50 having their cockpit windows smashed by them as they roared at low level over France. One of the few bombers intercepted by the enemy was a Lancaster of No. 207 which lost formation because of engine trouble. This was attacked near the French coast by three German float-planes, but good marksmanship by Sergeant Lovell⁴ and the English rear gunner shot down two of these and drove off the third. Heartening as were the results of this raid, it represented, however, only a brilliant exposition of tactical initiative. Enemy defences were unlikely to be surprised again in daylight over vital areas in France, and this attack lay outside the general pattern of Bomber Command operations. Fast and manoeuvrable as were the Lancasters, their main armament of .303-inch machine-guns was insufficient to withstand attack from organised day-fighter defences.

Although the flight of the battle cruisers *Scharnhorst* and *Gneisenau* from Brest relieved Bomber Command from its obligation to attack that port, the needs of the Admiralty remained high. Most of the major ports in Germany itself were included in the list of alternative targets issued to Bomber Command in February 1942, all except three—Bremen, Emden and Wilhelmshaven—lying outside Gee range. Naturally they were on the outer fringe of the enemy defence line, so that, although fierce opposition could be expected over the target, they presented opportunities for staging experimental raids at long range, to see whether large bomber forces could be brought compactly into action in concentrated area attacks on cities. This series of raids appears as a stepping stone in regards difficulty of navigation, target identification and penetration of enemy defences, between the French raids and those on inland German cities. Although they were contemporary in time with many attacks on the Ruhr, they yielded invaluable experience for future mass strategic bombing.

The first attack was made on 28th-29th March against Lubeck, a medium-sized Baltic port, fairly easily recognisable from the air owing to its situation on the River Trave. It was an important enemy supply base for the Russian and Norwegian fronts, and was then heavily stocked with all manner of equipment awaiting shipment when the winter ice melted. Accordingly, it was considered that the town was probably highly inflammable and the raid was planned primarily to learn with what success the first wave of aircraft could guide the main body to its target by starting a conflagration at the aiming point. Ten Hampdens of No. 455 accompanied 224 other aircraft against this target, and the attack developed as planned. The advance fire-raising aircraft dropped their incendiaries half an hour before the main body was due to arrive, so that fires could gain a firm hold and present both a navigational and bombing beacon.

⁴ Sgt J. H. Lovell, DFM, 408145; 207 Sqn RAF. Farmer; of Smithton, Tas; b. Stanley, Tas, 17 May 1917. Killed in action 7 Nov 1942.

In all 144 tons of incendiaries and 160 tons of high-explosive bombs fell on the town, a very significant proportion in accord with the new ideas of relative destructive power of fire and blast on such targets. Nine of the Australians identified the primary target by the light of raging fires and bombed from heights ranging between 7,000 feet and 4,000 feet. They themselves met little opposition, but other aircraft were intercepted by fighters over Denmark and northern Germany, and twelve aircraft from the whole force failed to return, though these losses were light in relation to the success of the bombing. Almost half the centre of Lubeck was destroyed, chiefly by fire. Twelve factories were destroyed or badly damaged, and warehouses and buildings in the port area were burnt out. The damage was greater than had previously been caused in any German city.

A month later, similar fire-raising attacks were made against Rostock on four consecutive nights, beginning on 23rd-24th April. No. 460 was not engaged in the first raid but sent a few aircraft on each of the remaining three (see Table No. 5).

TABLE No. 5

ROSTOCK

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Apr 24-25	125	113	460	3	3	161	1	—
Apr 25-26	128	114	460	4	4	188	4	—
Apr 26-27	107	96	460	3	3	137	3	—

During this series of raids on Rostock, weather was good and visibility excellent, and although the defences of the town were rapidly reinforced after the first night, the task became progressively easier because of conflagrations begun on preceding nights. There were two main objectives, the port itself and a Heinkel aircraft-assembly factory in open country outside the town. The problem of hitting the factory was solved by detailing aircraft of Nos. 1, 3 and 4 Groups to attack Rostock with incendiaries, while No. 5 Group Hampdens made timed runs from this position to attack the factory with high-explosive bombs. Practically three-quarters of the Old Town of Rostock was devastated and the port and storage facilities extensively damaged; almost a third of the Heinkel works was wrecked. On all three occasions the R.A.A.F. Wellingtons carried bomb loads composed of 30-lb incendiary bombs and all claimed to have hit the pre-

scribed aiming point in the city, these claims in some instances being substantiated by flashlight photographs. During their first raid the crews reported nothing except extensive fires, but on the last two raids they had to face greatly intensified heavy and light anti-aircraft fire, which forced them to bomb from a higher level. Night fighters also appeared in strength after the first attack. After bombing on 25th-26th April, Sergeant Levitus⁵ was attacked three times by an Me-110, which twice bore in with great determination to 100 yards' and finally to 50 yards' range. Each time the Wellington returned fire, and at last the Messerschmitt, hit in both engines and with its cockpit in flames, fell away out of control. The Wellington itself was riddled with bullets and badly damaged, but returned safely. The following night Sergeant Kitchen⁶ was engaged north of Sylt by another Me-110. His rear gunner, who saw the fighter's approach too late, was seriously wounded and unable to warn Kitchen who thought he had been hit by anti-aircraft fire and took appropriate evasive action. It was not until the fourth attack, when the pilot himself glimpsed the Messerschmitt away to port, that he realised his true danger: he immediately dived low on the sea and the enemy pursuer was shaken off. The second pilot had also been wounded and the Wellington badly holed, but by tenacity and skilful airmanship, which brought a personal commendation from the Air Officer Commanding-in-Chief Bomber Command, Kitchen managed to fly his aircraft back to base.

Lubeck and Rostock were, in a sense, special cases, because their remoteness from R.A.F. airfields had led the enemy to neglect not only the normal anti-aircraft and fighter defences, but also the decoy fire sites which, at other targets, still caused considerable confusion. Bombing raids on the other German ports did not, at this time, achieve the same spectacular success because visual identification of the target was progressively more difficult, as bombers were forced upwards by strong gun defences; the rhythm of concentrated attack could be upset by fighter aircraft; and spurious fires in open country attracted many bombs. For a moderately successful raid on Kiel on 28th-29th April, No. 460 dispatched ten Wellingtons, all of which had difficulty in finding their target, and one of which failed to return. On 8th-9th May, following a supplementary directive requiring Bomber Command to concentrate when possible on enemy aircraft factories, a force of 193 bombers was sent against Warnemunde, a Baltic seaport near Rostock. Here the Heinkel (Arado) works were then producing Me-109's and 110's for the Russian front. On this occasion, 147 aircraft were detailed to attack the factories, only 34 to fire the town and a further 12 specially selected to bomb and machine-gun searchlights, with which the enemy had previously shown great skill in creating glare which prevented accurate identification of ground areas. Weather was good and seven of eight R.A.A.F. Wellingtons sent to

⁵ Sgt S. Levitus, 402910. 150 Sqn RAF, 460 Sqn. Salesman; of Bellevue Hill, NSW; b. Sydney, 17 Apr 1920. Killed in action 2 Jun 1942.

⁶ W-O D. G. Kitchen, 400805; 460 Sqn. Assistant manager; of Hawthorn, Vic; b. Prahran, Vic, 24 Mar 1916. Killed in action 20 Jun 1942.

attack the northern part of the town with a full load of incendiaries, reached the target, but their bombing was not effective, largely because of the searchlights. None of the fires reached large proportions, damage in the town was very scattered and only a small number of bombs hit the Heinkel works. Valiant attempts were made by individual crews to bomb their precise target, and Flying Officer Nicholson⁷ was the navigator in an aircraft of No. 115 Squadron which made seven runs over the town looking for the factory, finally being hit by anti-aircraft fire and being forced to return on one engine.

Hamburg, the second largest city in Germany and an important centre of U-boat construction, was raided three times in early spring, left alone during the shorter nights of May and June, and then attacked twice during July. R.A.A.F. squadrons joined in two of the early and one of the later attacks as set out in Table No. 6.

TABLE No. 6

HAMBURG

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Apr 8- 9	172	168	455 460	10 4	9 4	250	5	—
Apr 17-18	173	113	460	10	10	167	8	—
Jul 26-27	403	304	460	12	11	724	30	2

On 8th-9th April violent electrical storms and icing en route severely affected navigation and timing, and crews who did reach Hamburg found the city almost entirely covered by cloud. This attack was in vivid contrast to the previous success at Rostock, as bombs fell haphazardly over a wide area, and created little damage at all. Of the four Wellingtons of No. 460, one bombed the docks at Wilhelmshaven, another a gun position on the Elbe and the remaining two dropped their bombs when they estimated they were over Hamburg. Similarly, of ten Hampdens from No. 455 one returned early, one neither saw nor identified anything, seven bombed gun positions or the glow of fires under the clouds and only one claimed to have seen his allotted aiming point through a break in the overcast. For the next raid (17th-18th April), weather conditions were much better, but the enemy searchlight crews laid their beams horizontally

⁷ Sqn Ldr B. W. Nicholson, 407195; 115 Sqn RAF. Clerk; of North Adelaide; b. Thorneyburne, Northumberland, Eng, 24 Jul 1911.

through a ground haze which covered the city, producing marked dazzle effect. Only two of No. 460's Wellingtons identified the Blohm and Voss shipyards, four were not sure of their position of release and four attacked the "last resort" alternative target of Cuxhaven. Although several large warehouses were burnt out, this attack was again a manifest failure to put into practice the new theory of concentrated bombing. The raid of 26th-27th July was a maximum effort for the command and it was hoped, by increased weight of numbers, to saturate the defences. The first wave attacked with incendiaries in bright moonlight just before 1 a.m., but only scattered fires (some obviously dummy sites), and much smoke, were seen by the main force which faced very heavy gun barrages, and was badly harassed by night fighters. The R.A.A.F. crews claimed accurate hits, but many bombs fell wide on residential areas, and the biggest patch of damage was some twelve acres of the commercial section of the city near the Binnen Alster, which suffered badly from fire. Even this moderate result from such a large effort was greater than that achieved two nights later, when only dispersed Australian aircrew were involved in a force of 259 aircraft sent to Hamburg. More than half the bombers were recalled or turned back because of atrocious weather; only 68 reached the target and from all causes 31 aircraft failed to return.

The North Sea port which received most attention from Bomber Command, however, was Bremen, which, between April and September 1942, had directed against it approximately 2,500 of the 10,500 sorties flown against all naval targets. The shipyards, U-boat facilities, aircraft factories, warehouses and transport system at this port, were of particular importance, and, because it lay within Gee range, it had a special priority rating as a routine target. No. 460 participated in only three of this series of raids (see Table No. 7).

TABLE NO. 7

BREMEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Jun 3- 4	170	132	460	6	5	246	10	—
Jun 25-26	1,003	713	460	20	17	1,450	48	—
Jul 2- 3	325	263	460	18	14	511	12	2

On 3rd-4th June marker flares were accurately placed and R.A.A.F. crews found them very helpful in identifying the town. The U-boat yards

were not hit but the surrounding dock areas received moderate damage. The raid on 25th-26th June was the third "1,000-bomber" mass attack designed to send the maximum number of aircraft over a target in the minimum possible time. Weather spoilt the experiment, for many crews were late, and clouds drifted in from seawards just when the attack was due to begin. Besides the 1,003 bombers sent to Bremen, 102 aircraft of all R.A.F. Commands attacked continental airfields to disrupt the enemy night-fighter organisation. This ambitious raid was only partially successful, most of the Australian crews attacking guns, searchlights or glows beneath the cloud, without any precise idea of their position. Many places in north-west Germany were bombed that night in mistake for Bremen, but buildings in the Focke-Wulf aircraft factory were wrecked and scattered damage done to other factories, docks and railway yards at Bremen itself. Enemy reaction was strong, and among other such incidents, Pilot Officer Falkiner⁸ was four times attacked by fighters during his return journey. One Ju-88 was shot down by the Wellington's rear gunner, Flight Sergeant Witney,⁹ and was seen blazing on the sea, and the other three were shaken off by determined evasive action.

Two nights later, during another raid on Bremen in which No. 460 did not participate, Sergeant Griggs¹ of No. 214 Squadron R.A.F. had an even more desperate struggle with five enemy night fighters. The first attack on Griggs' Stirling developed as he crossed the Dutch frontier on his way home, when two fighters attacked simultaneously. One was driven off by well-directed fire from front and mid-upper turrets, the other, which was seen to crash, being shot down by the mid-upper gunner. During this phase, the rear gunner had been killed, the wireless operator wounded, one of four engines put out of action, and the intercommunication, radio and electric systems had also failed. Griggs was struggling to keep his damaged aircraft on a straight course when two Me-109's dived on the Stirling as it was crossing the Dutch coast. The front gunner who was giving first aid to the wireless operator, was barely warned in time by the navigator who, because the intercommunication set was not working, had to run down the fuselage. Both the Messerschmitts were shot down into the sea, but the Stirling was further damaged and lost height to 8,000 feet, also suffering hits by anti-aircraft fire from near-by ships. Soon afterwards another Me-109 attacked and although driven off, this attack caused the crippled bomber to dive out of control, Griggs only regaining flying attitude when almost at sea level. His plight was now desperate, for many of the flying instruments were not registering but he struggled grimly on, and, although a second engine burst into flames as he neared his home airfield, by extraordinary judgment, strength and skill he somehow contrived to make a good landing.

⁸ F-Lt J. A. Falkiner, 400952; 460 Sqn. Student; of Widgiewa, NSW; b. Caulfield, Vic, 6 Jul 1918. Killed in action 22 Sep 1942.

⁹ F-Lt R. C. Witney, DFM, 400764; 460 Sqn. Clerk; of Donald, Vic; b. Dimboola, Vic, 18 Aug 1918.

¹ F-Lt F. M. Griggs, DFC, DFM, 400468. 214 and 109 Sqns RAF. Bank clerk; of Vinifera, Vic; b. Swan Hill, Vic, 1 Dec 1921.

Strong defences, coupled with heavy cloud extending upwards to 20,000 feet, also spoilt the last of this series of raids on Bremen during the night of 2nd-3rd July. Most of the R.A.A.F. crews were unable to identify the town, and Squadron Leader Leighton² of No. 460 who himself bombed from beneath the cloud, reported that he saw fires and explosions up to ten miles outside the city area. Photographic evidence showed little fresh damage, except at Delmenhorst, nine miles south-west of Bremen, where textile factories already had been heavily damaged by fire during the raid of 25th-26th June.

Much better results were obtained, however, during June 1942 from bombing attacks on Emden, which beside being an important trans-shipment centre for Scandinavian iron ore, normally had six U-boat building slipways in operation. It was a suitable target for short summer nights, and of the four attacks made, No. 460 joined in three (see Table No. 8).

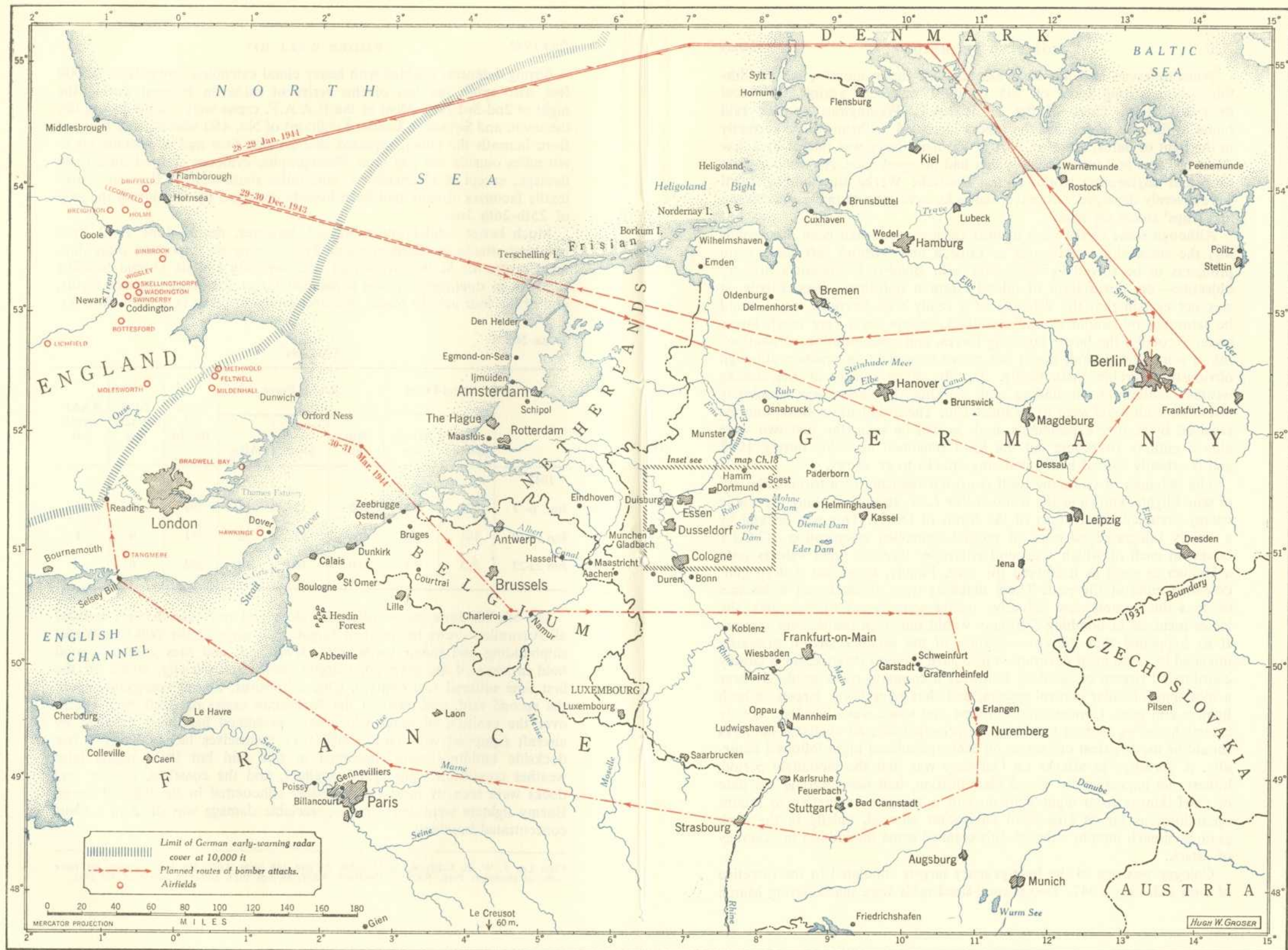
TABLE NO. 8

EMDEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Jun 6- 7	233	195	460	12	12	393	9	—
Jun 19-20	195	130	460	12	12	251	9	1
Jun 22-23	225	195	460	10	10	392	6	—

On 6th-7th June the weather was clear and well-placed flares enabled all Australian crews to see their target. Ten acres of the Nordsee Werke shipbuilding and repair yards were devastated, and fires gained a good hold in some of the main commercial sections of the city, which for the first time suffered real damage. Cloud, however, almost completely spoilt the second raid, and most of the Australian crews dropped their bombs over the position of flares which they presumed had been dropped by aircraft equipped with Gee, which they themselves lacked. Only a few dockside buildings were destroyed in this raid but three nights later weather conditions were again excellent, and the coastline, estuary and docks were seen by most crews plainly silhouetted in the light of flares. Enemy fighters were active but appreciable damage was done in a short concentrated bombing.

² Sqn Ldr J. W. E. Leighton, 40053 RAF. 52 and 149 Sqns RAF, 460 Sqn. Regular air force offr; of Hurlstone Park, NSW; b. Goulburn NSW, 15 Apr 1917. Killed in action 26 Jul 1942.



Bomber Command: Principal Australian targets.

Wilhelmshaven had not been attacked for many months, but on 8th-9th July a strong force of 285 bombers was sent against the naval dockyard there. Three of the 13 R.A.A.F. Wellingtons on this raid failed to find the target, but the others identified Wilhelmshaven correctly in the light of flares, although part of the main force was misled by a few sticks of flares and incendiaries which had dropped wide. An armour-plate shop and engineering works of the Deutsche Werke shipbuilding yards were severely damaged, two naval barracks were hit and many warehouses and ships' stores set afire.

Although some of the raids against German ports had been disappointing, the successful experiments at Lubeck and Rostock left three main problems to be solved in connection with Bomber Command's primary objective—the devastation of inland German industrial cities. Firstly, it was not certain that the defences of a really well-defended target could be saturated by similar incendiary attack, except on a very much larger scale. Secondly, the larger bombing forces, and concentration of bombing into a minimum period, might not prove successful in practice although obviously desirable theoretically. Thirdly, some means of overcoming weather limitations on finding and marking the target was absolutely essential, if all raids were to be successful. These difficulties could only be resolved by further experiments, and, as will be seen, the first two were almost entirely overcome but the third remained insoluble during 1942 and constantly caused heavy bombing attacks to go astray.

The defences of Germany itself consisted basically of a formidable belt of searchlights, known as the *Kammhuber Line*, stretching along the whole enemy-occupied coast north of the Strait of Dover. This was backed by a closely integrated network of ground-controlled interception (G.C.I.) boxes, in each of which a ground controller directed night fighters onto a bomber as soon as it entered the area. Finally, there was a deep gun-defended zone at the rear. These defences were efficient and it became obvious that, unless new defensive tactics were found for bombers, the losses incurred in bombing Germany would outweigh the damage caused. It so happened that the concentration of the bomber stream primarily intended to cause most devastation also gave the best defence, for a closely coordinated stream of bombers following a common route would fly over a minimum of radar control sectors, and thus offer fewer targets to both fighters and guns. Concentration in time and space was, therefore, doubly essential, and as soon as practical, the principle that all available bombers should be used against one target on each operational night followed naturally. A corollary in attacks on Germany was that the moonlight period, hitherto so important for visual identification, had now become the time of chief danger from night fighters, and it became imperative to mount operations, as far as Gee-aided navigation allowed, chiefly in the dark periods of each month, although this entailed some diminution in accuracy of attack.

Cologne was one of the four primary targets stipulated in the directive of 14th February 1942. Two normal-sized raids were made during March

and April, but its chief importance springs from the fact that it was finally chosen for the full-scale experiment of mass area attack with a force of approximately 1,000 bombers. This was twice the size of any previous formation, and was to attempt an unparalleled speed of bombing—no fewer than ten aircraft every minute. As seen in Table No. 9, Australian squadrons participated in all three raids.

TABLE No. 9

COLOGNE

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Mar 13-14	135	104	455	5	5	160	1	—
Apr 5- 6	263	212	455 460	11 5	11 4	313	5	— —
May 30-31	1,042	868	460	18	17	1,459	40	—

Five experienced Hampden crews from No. 455 found great difficulty in finding Cologne on the occasion of the first raid and only one claimed to attack the centre of the city. Clouds obscured the target but the other crews attacked blind after timed runs from identified points on the River Rhine. Gun defences were active and two of the Hampdens were hit. Subsequent photographic reconnaissance revealed little material damage in Cologne. The following raid on 5th-6th April was made with a much larger force employing the rudimentary target-marking system of that date. At 1.30 a.m., incendiary bombs were dropped, and then one and a half hours later the main bomber stream attacked with 204 tons of high-explosive bombs. The eleven Hampdens and five Wellingtons of the R.A.A.F. in this second force found difficulty in distinguishing between real and dummy fires which spread over a wide area, and their confusion was increased by a ground haze. Consequently, only two crews actually identified the aiming point and the others bombed the bend of the River Rhine. Nevertheless, some useful damage was caused, mainly along the river front.

Plans for the first "1,000-bomber" attack proceeded throughout May, and entailed an unprecedented degree of coordination. The average number of bombers available daily, at this period, was only 450, but by reducing operations and by untiring efforts on the part of maintenance crews serviceability was temporarily greatly increased, although 366 aircraft had finally to be provided from training units. Meteorological, intelligence and

flying-control staffs, armourers and ground crews, worked unceasingly to prepare the bombers and to ensure that the plan could be rigidly followed. Finally, when the force had been standing by for some days, it was decided to attack during the moon period at the end of May, because previous experience had shown that Gee was unreliable at so great a range and the success of the experiment depended on visual identification. The crews of No. 460 experienced bad weather over the North Sea, but over the city visibility was excellent and the River Rhine showed clearly. All the Australians except one successfully bombed the city with the help of fires which were already raging when they arrived. Nearly two-thirds of the total tonnage dropped consisted of incendiary bombs, and the sheer weight of the attack defied all attempts to bring fires quickly under control. Six hundred acres, half of which lay in the centre of the city, were devastated; 250 factories were destroyed or badly damaged, including the Humboldt Deutz submarine engine works and the Gottfried Hagen accumulator factory; the Nippes railway workshops were gutted and widespread damage done to civilian and commercial property. Even more satisfactory for long-range plans was the precision with which the plan had materialised in practice. All aircraft bombed within one and a half hours, and there were no known casualties from collisions or falling bombs, as might have accrued during such a revolutionary experiment. Concurrent attacks on enemy airfields by aircraft of other R.A.F. commands had reduced the danger from night fighters, but the sheer inability of the guns and fighters in the coastal-defence belt to engage more than a few of the bombers out of the large stream passing so quickly through, was the prime defence. Even over Cologne, which was defended by 120 searchlights and up to 500 anti-aircraft guns, the profusion of bombers and the nature of the raid effectively distracted the enemy from concentrating on single aircraft for any length of time.

The result of the mass raid on Cologne was almost equal to the aggregate of damage in all other German towns attacked up to that date. It triumphantly vindicated the tactics of concentration and the technique of incendiary attack, but it added little to the search for a reliable means of target identification, as by moonlight, in clear conditions, the Rhine was a natural guide. Although the third-largest city in Germany, it was not such a vital target as the Ruhr complex of steel and engineering cities, which must be razed before any irreparable damage could be done to enemy armament production. Especially vital was the town of Essen, where lay the tremendous Krupps factories. During the four months March-June 1942, out of a total of approximately 8,000 sorties by Bomber Command, some 3,200 (40 per cent) were directed against this one target, but no real success was attained. Exceptional difficulty existed in finding Essen among the large network of Ruhr cities. Apart from its prodigious gun and searchlight defences, decoy fire sites and strong fighter cover, it was usually covered by a thick haze of factory smoke; natural lakes had been drained or camouflaged and other areas flooded, while the River Ruhr was not a significant landmark. The losses of

bomber aircraft on this target during 1942 averaged 5 per cent of sorties. Despite this, and although the results of bombardment were generally disappointing, this bitter campaign was valuable and necessary in the final evolution of strategic-bombing practice. In all but a few of the raids, which were discontinued in June 1942, Australian squadrons took part (Table No. 10).

TABLE No. 10

ESSEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Mar 8- 9	211	151	455	2	2	297	8	—
Mar 9-10	187	145	455	4	4	210	1	—
Mar 10-11	126	93	455	8	6	165	4	1
Mar 25-26	254	192	455 460	3 3	3 3	300	9	— —
Apr 6- 7	157	55	455	3	2	89	5	1
Apr 10-11	254	185	455 460	10 8	7 8	227	12	2 —
Apr 12-13	251	178	455 460	6 4	6 4	269	10	— —
Jun 1- 2	957	726	460	19	19	1,235	32	2
Jun 2- 3	195	144	460	10	10	309	13	2
Jun 8- 9	170	120	460	7	7	294	17	1

The attack on 8th-9th March was the first in which Gee was used operationally, those aircraft of No. 3 Group equipped with the device being detailed to lead the others to the town. Partly because of a systematic error which only became apparent at long range, and partly due to the initial difficulty of inexperienced crews obtaining "fixes"³ with precision while passing through heavily-defended areas, the leading aircraft dropped their flares outside Essen. The following incendiary force naturally also bombed wide, and the final wave, carrying high-explosive bombs, attacked

³ Gee was by no means as successful on operations in 1942 as it had been during its trials. It had relatively little effect on the success of operations in bright moonlight and good visibility,

these fires in open country. Thick ground haze made it impossible for any of the three forces to adjust their bombing by reference to ground landmarks. Nine Hampdens of No. 455 should have proceeded on this raid, but one became bogged on the perimeter track and prevented all but two from taking off. These two could not locate Krupps but claimed to have attacked the town, which, however, was shown by photographs to be undamaged. On the following night, only four of the nine Hampdens detailed were dispatched because bad weather required the elimination of all except very experienced crews. On this occasion, the incendiaries, following the Gee-equipped flare droppers, released their bombs in error over Hamborn, with the result that Essen again escaped undamaged, although the error resulted in some bombs hitting the Thyssen steel works at Hamborn. On the third night, 10th-11th March, a new technique was attempted by which the Gee-aided leaders themselves dropped incendiary bombs instead of flares but this gave no better results. Of the 8 R.A.A.F. crews, 2 failed to attack, one was lost, 4 bombed unidentified built-up areas in the Ruhr and only one claimed to have bombed Essen. The only real damage caused that night was far removed from Essen, the Hobel steel works at Dortmund being hit.

A larger force was sent on 25th-26th March, in an attempt to attain concentration of bombing, but Krupps remained as elusive a target as before. Natural and artificial smoke screens covered the Ruhr, and very strong gun batteries prevented any low approach. Four of the R.A.A.F. aircraft were damaged (one badly) by anti-aircraft fire. All reported that they attacked the main fires, although night photographs revealed only cloud, and no subsequent reconnaissance was made to assess any damage which may have resulted. The next raid on 6th-7th April was also very disappointing. Bad weather again reduced No. 455's effort from 11 to 5 aircraft, and of these 2 failed to take off through technical trouble, one became iced up in cloud and turned back, one could not locate Essen and bombed at the estimated time over target, and the other failed to return. Similar difficulties were met by all crews on the raid, and only one-third of the force claimed any sort of attack. Four nights later No. 455 put ten Hampdens into the air and No. 460 eight Wellingtons, but once again haze and unbroken cloud over the Ruhr prevented any ground detail being identified. Dummy fires and a new development, decoy orange flares, were spread throughout the Ruhr, so that many pilots preferred to attack according to their own navigation plot, but this resulted

but did improve results to a small degree on short-range targets in cloudy, hazy or moonless nights.

Period	Per cent of photographs of target area	Per cent of aircraft reporting attack on primary target
Pre-Gee		
Jun 1941-Feb 1942	11	68
Gee		
Mar-Apr 1942	18	75

Results improved, however, in both favourable and unfavourable weather as soon as crews became experienced in the use of Gee and the instrument itself was more widely fitted in aircraft. An important secondary advantage obtained from Gee was that it enabled large numbers of aircraft to swiftly reach home or emergency airfields in most weather conditions, thus reducing the loss rate over the UK of aircraft returning from the target.

in very scattered bombing. To defeat this new defence, the leading aircraft on the next raid (12th-13th April) carried green and white flares to mark Essen, but another error resulted because the flares were released over Schwelm. The R.A.A.F. Wellingtons and Hampdens claimed to attack Essen, where they found no green flares but again saw many orange ones fired from the ground.

Essen was not again attacked until the mass raid of 1st-2nd June, two nights after the resounding success by a similar force against Cologne. The natural defences, haze and low cloud again confused the attackers, and although eighteen aircraft dropped illuminating flares with the aid of Gee, and were closely followed by an incendiary force of Stirlings and Halifaxes, no real concentration of bombing was achieved. Nineteen Wellingtons of No. 460 found nothing to bomb except widely-scattered fires, and again the main weight fell away from Krupps, and Oberhausen, Mulheim, Hamborn and Duisburg suffered more damage than Essen. The raid, while failing in its main object, again demonstrated that defences

TABLE NO. 11
DORTMUND

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Apr 14-15	208	123	455 460	6 8	6 7	160	11	— —
Apr 15-16	152	92	455 460	3 2	3 2	118	4	— —

could be saturated by large numbers of aircraft, and although Australians reported several incidents, the number of aircraft lost, and especially the proportion of aircraft damaged by anti-aircraft fire, was noticeably low. Clear weather conditions were forecast for the following night when a normal-sized attack was projected, again using the illuminating technique. This time the flares were very helpful in bringing the bomber stream over the target, and most of the crews were satisfied that their bombs dropped on built-up areas, even though the prevalent haze prevented them from identifying Krupps. The last of this disappointing series of raids followed on 8th-9th June, and again resulted in very scattered bombing. Three Australian Wellingtons bombed on their estimated navigational position, two identified the aiming point, and a sixth, which was caught in searchlights and hit by gun fire, made a timed run from the position of one of the recognised enemy decoy fire sites.

Essen presented, in its most extreme form, the then insuperable difficulty of providing a reliable aiming point for bombers, but the other Ruhr towns all posed a similar problem. Immediately following the April raids on Essen, Dortmund was attacked on two consecutive nights, because meteorological forecasts indicated it would be free of Ruhr smoke (see Table No. 11).

On 14th-15th April barely 60 per cent of the bomber force found Dortmund, and bombing was made difficult by the favourite enemy ruse of screening the area by the aid of searchlights laid horizontally over artificial smoke. None of the six R.A.A.F. Hampdens and seven R.A.A.F. Wellingtons claimed to see the precise target, and, later, photographs indicated that about half the bombs which were actually dropped, fell within a radius of five miles from the town centre. Scattered but extensive damage was done to engineering works. The clear weather expected the following night did not materialise, and, after struggling through turbulent air and icing conditions along the route, the bombers found Dortmund completely covered by dense cloud rising to high altitudes. Little fresh damage was done by bombs dropped principally on estimated time over the target.

TABLE No. 12

DUISBURG

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Jul 13-14	194	161	460	12	12	342	5	—
Jul 21-22	291	250	460	12	10	577	13	—
Jul 25-26	313	252	460	15	14	547	11	2
Sep 6- 7	207	175	460	4	3	439	8	—

Experience at Essen and Dortmund led Bomber Command to concentrate, during the late summer of 1942, on the remaining two of their primary Ruhr targets, Duisburg and Dusseldorf. Both of these cities, like Cologne, bordered the River Rhine and therefore, under normal conditions, were far easier to find from the air. The important river port of Duisburg was attacked four times in July, once in August and once in September, No. 460 joining in four of these raids (see Table No. 12).

It will be seen from reference to the bombing tables that the average bomb load per aircraft increased noticeably at this period, due to a

rising proportion of four-engined bombers and, especially, of Lancasters.⁴ It had now become a fixed policy to send all available aircraft on each raid, and saturation of enemy defences was hoped for by this increased bomb load, although the actual numbers of aircraft fell far short of the "Cologne model".

The initial raid was a failure, as the bombers arrived individually over the target area, many after the flares had burnt out. Cloud blotted out the city and consequently little damage resulted in Duisburg. A week later, however, on 21st-22nd July in good weather, matters went more nearly to plan and all aircraft bombed within half an hour, a concentration little less than that achieved at Cologne. The first waves saw their objective clearly in the light of well-placed flares, and although latecomers were faced by artificial smoke screens, they bombed well-established fires, easily distinguished from the decoys because of their size. Three steel works—Niederheinische Hutte, Krupps and Thyssen—suffered considerable damage. Four nights later weather again spoilt the attack, and R.A.A.F. crews were forced to bomb the most promising fires or gun positions in the estimated position of Duisburg. Subsequent photographic reconnaissance revealed additional devastation to factories, public and private property, but no large areas were destroyed. The final raid on 6th-7th September, although it began promisingly with well-laid flares, again lacked good timing by the main bomber force and only isolated incidents of destruction resulted. On this raid a Wellington of No. 460, piloted by Flight Sergeant Jackson,⁵ was hit by shell fire while bombing and suffered further damage by fighter attack twenty minutes later. Three of the crew were wounded and the aircraft was badly holed but it finally reached base. Pilot Officer Morgan,⁶ navigating a heavy bomber of No. 49 Squadron, was not so fortunate, as his crew, after a nightmare ordeal in trying to get their crippled aircraft home on two engines, finally had to bale out as soon as they reached England, for the Lancaster was almost unmanageable and was steadily losing height.

Three raids on Dusseldorf (Table No. 13), the headquarters and administrative centre of the German steel industry, followed the partial July success against Duisburg. This city was slightly smaller than Essen, but held the armament and heavy engineering works of Rheinmetall Borsig which rivalled Krupps in importance.

Operational training units provided many crews for the first attack, executed in bright moonlight and good weather. Among the bombs dropped were 168 4,000-lb bombs and although bombing spread westward, partly because inexperienced crews bombed incendiaries jettisoned by preceding aircraft attacked by night fighters, extensive damage was done to im-

⁴ The approx average bomb load of each type varied according to the distance of the target and the composition of the bombs. Thus a Wellington could carry one 4,000-lb bomb to most targets, but the *average* Wellington load throughout the war was less than 3,000 lbs. The *average* bomb load of other types was: Stirling, 5,500; Halifax, 6,900; Lancaster, 9,200.

⁵ F-O F. R. Jackson, DFM, 400989. 460 Sqn, 109 Sqn RAF. Bank clerk; of Sale, Vic; b. Sale, 18 Dec 1918. Killed in action 22 Oct 1943.

⁶ F-Lt J. C. H. Morgan, 400724. 49 and 106 Sqns RAF, 467 Sqn. School teacher; of Cardinia, Vic; b. Kangaroo Flat, Vic, 19 Oct 1912.

portant factories and to the riverside docks. Four large buildings of Schiess Defries, one of the largest machine-tool factories in Germany, were wrecked, and several other engineering and chemical works were partially gutted. Bright moonlight, however, likewise aided the defences and although the Australian Wellingtons returned safely, one was badly hit by gun fire and two others were engaged by night fighters. Pilot Officer Silva,⁷ an instructor, piloting an aircraft from No. 24 Operational Training Unit, had his aircraft hit and damaged but nevertheless pressed home his attack. While straggling behind the main returning bomber stream, a night fighter made two attacks, setting the aircraft on fire and shooting away most of the controls. With two members wounded, Silva managed to hold the Wellington level long enough for his pupil crew to bale out, and then followed them with his parachute straps on fire and the parachute holding

TABLE No. 13

DUSSELDORF

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Jul 31-Aug 1	630	470	460	8	8	907	30	—
Aug 15-16	131	98	460	6	4	232	4	—
Sep 10-11	476	360	460	10	7	760	30	2

by only one hook. He was burnt on face and hands, but despite his pain went into hiding after reaching the ground, and subsequently found members of the Belgian resistance movement who arranged for his escape to England. Another Australian, Sergeant Woods,⁸ captained a Stirling of No. 214 Squadron R.A.F. which was heavily engaged by the target defences but he succeeded in evading them.

The smaller raid on 15th-16th August was upset by unfavourable cloud conditions and only scattered fires resulted. The ground defences were hampered, but night fighters were active, and Sergeant Brasher⁹ was twice attacked, his gunners shooting one of the enemy aircraft down in flames. On 10th-11th September, however, a good concentration of bombs on

⁷ F-O G. Silva, DFC, 402258. 24 OTU and 77, 119 and 210 Sqn RAF. Salesman; of Maroubra, NSW; b. Inverell, NSW, 19 Mar 1916. Killed in action 13 Jun 1943.

⁸ F-O C. W. Woods, DFM, 402941. 218, 115 and 214 Sqn RAF. Farmer; of Lismore, NSW; b. Lismore, 29 Jun 1915. Killed in action 31 Aug 1943.

⁹ F-Sgt E. K. F. Brasher, DFM, 404949; 460 Sqn. Clerk; of Windsor, Qld; b. Brisbane, 9 Oct 1916. Killed in action 14 Sep 1942. Brasher's uncle, A. E. Forbes, served in the ranks during the South African War gaining a DCM; subsequently as a chaplain with the 1st AIF 1914-18 and with the AMF until 1944.

the town was again made possible by the absence of cloud, though some bombs fell as far away as Krefeld and Munchen Gladbach. An additional 100 acres in the centre of the city and thirty more factories were destroyed, and this raid in conjunction with the first, made Dusseldorf, in relation to its size, more heavily and effectively damaged than even Cologne. Incendiary attack, now coupled to a growing proportion of very heavy high-explosive bombs, was obviously capable of achieving the primary objective of Bomber Command, if only the weak link of target marking could be strengthened by some sure method.

Apart from the necessity of concentrating on the main Ruhr targets, Bomber Command faced special difficulties in attacking cities in south-western Germany. Consequently the effort devoted to them during the spring and summer of 1942 was not large. It was important, however, to solve the problem of bringing a bomber stream long distances over enemy territory and then executing a well-timed concentration attack, so, except during the short nights of June and July, a few experimental raids were executed, mostly on cities already named as alternative primary targets. Stuttgart on the upper Rhine, and lying some 600 miles from R.A.F. bases, was chosen for attack on three consecutive nights early in May—the principal aiming points being the Bosch magneto works and Daimler Benz aircraft-engine factories. The raids were on a small scale, so that in the first and the last (see Table No. 14) No. 460 played a larger proportional part than in any other during this period.

TABLE No. 14
STUTT GART

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis- patched	Attack- ing	Sqn No.	Disp	Atkg			
1942								
May 4- 5	120	34	460	10	9	54	1	—
May 6- 7	77	54	460	10	10	93	4	2

Although a few fires were started in the southern districts of Stuttgart on 4th-5th May, the raid was ineffective as most crews failed to find the target, and even those who reached the town found it covered by cloud and haze. Only one of the R.A.A.F. Wellingtons attacked the primary target; one bombed Karlsruhe; three, an airfield south of Stuttgart; two, small neighbouring towns; one, an unidentified built-up area; and one a searchlight position. Two nights later, navigation to the target was vastly improved, and eight Australian crews claimed to bomb the

town itself through thick haze. Most of the bombs actually fell in open country, though some damage was done to the Bosch works and railway lines around the city.

Mannheim also escaped lightly on 19th-20th May. All eight Australian Wellingtons, included in a force of 197 bombers, attacked in the light of green flares dropped by the leading illuminators, but later aircraft were confused by the usual haze and searchlight technique, and mostly bombed at their estimated time of arrival. Reconnaissance photographs taken the next day showed damage to one chemical factory and a few minor fires scattered throughout the city.

Saarbrücken had never been raided in strength by Bomber Command, and although not detailed in the directive of 14th February, its coal and steel industries were of great importance. Accordingly four attacks, in only two of which No. 460 took part (see Table No. 15) were made between July and September.

TABLE No. 15

SAARBRÜCKEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Jul 29-30	291	245	460	13	11	576	9	—
Aug 28-29	113	88	460	6	6	133	10	1

Although Saarbrücken is an inland city with no very distinct geographical landmarks, the first of these attacks was extremely successful. Aided by bright moonlight and clear visibility, most of the bomber stream arrived compactly behind the incendiary force, and the absence of decoy sites led to accurate bombing. One crew from No. 50 Squadron R.A.F., headed by Squadron Leader C. E. Martin, took advantage of the relatively-weak opposition to glide down and drop its 4,000-lb bomb from only 3,000 feet. Many sheds in the rolling mills of the Dudelinger iron works were damaged, and almost a quarter of the large Ehrhardt and Schmer engineering works was destroyed, besides extensive destruction to mar-shalling yards, smaller factories, and commercial buildings. Heavier opposition was met by the bombers during their return flight, and Sergeant Brittingham¹ of No. 460 was attacked by an Me-110, whose fire severely damaged the Wellington and killed its rear gunner before Brittingham could shake it off.

¹ P-O R. A. Brittingham, 403160; 460 Sqn. Farmer; of Curlewis, NSW; b. Gunnedah, NSW, 16 Apr 1914. Killed in action 27 Jan 1943.

This heartening success was not repeated in the attack a month later, for weather dislocated the over-all flight plan. This led to widespread inaccurate bombing. Enemy ground and air defences had also been greatly strengthened, and in addition to dangerously high direct losses of 9 per cent of the attacking force, many other bombers were hotly engaged and damaged. In one Wellington of No. 12 Squadron R.A.F., which suffered fifteen deliberate attacks from a night fighter, Pilot Officer Wheeler,² though himself sustaining shrapnel wounds in his hands, took over fire control duties from the badly-wounded navigator, and remained in the astrodome directing the pilot and gunners until the Me-110 finally broke away. Wheeler then gave morphia to the navigator and, although in great pain himself, picked up radio fixes and bearings which brought the badly-wrecked aircraft to an emergency airfield in southern England, just as the petrol supply failed.

Mainz, an industrial and garrison town, also suffered its first attack from the air during this period, being raided on two nights in succession during August 1942 (Table No. 16). Its situation at the junction of the Rivers Rhine and Main made this an easier target to identify than other towns in south-western Germany.

TABLE NO. 16

MAINZ

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942								
Aug 11-12	154	123	460	9	9	339	16	—
Aug 12-13	138	99	460	7	5	241	5	1

On 11th-12th August good weather conditions prevailed, and fires lit by early incendiary bombs soon spread until the whole centre of Mainz was aglow. The bombers spent forty-five minutes over the target, not as high a degree of concentration as desirable, and thus, although the bombing itself was accurate and the ground defences seemed overwhelmed, enemy night fighters took a heavy toll of the straggling bombers. Seven of the Australian Wellingtons bombed Mainz; one, Wiesbaden; and one an unidentified built-up area, without themselves meeting any hostile aircraft, but many R.A.A.F. men arriving in later aircraft became engaged in combats. Four Australians flying with an American pilot in a Wellington

² F-Lt D. J. Wheeler, DFC, 404663; 12 Sqn RAF. Shop assistant; of Greenslopes, Qld; b. Brisbane, 7 Nov 1921.

of No. 150 came under very heavy fire from a night fighter, and Flight Sergeant Bell,³ the rear gunner, was killed and his turret put out of action. Sergeant Beattie,⁴ the wireless operator, was badly wounded in head and shoulders, and the Wellington was so extensively damaged, that, but for the wounded men who could not help themselves, the aircraft would have been abandoned. The navigator, Flight Sergeant Ritchie,⁵ and front gunner, Sergeant Chapman,⁶ gave every assistance to their pilot in his desperate but finally successful attempt to elude the enemy and then to reach England flying on one engine and with most of the instruments damaged. The next night the weather was not so favourable, but the leading aircraft successfully picked out the glow of fires started on the first raid, and again the majority of bombs fell near the city centre. Night fighters appeared in large numbers, but they, too, were hindered by cloud and the bombers escaped relatively lightly. Later photographic evidence revealed that about 135 acres of the city were destroyed, principally around the railway stations where many large warehouses were burnt out.

The last of this series of attacks was made on 2nd-3rd September by 200 aircraft against Karlsruhe, on the upper Rhine, an important rail centre which also contained many engineering works. In favourable conditions, a swift and accurate attack developed and 300 acres of the town were razed—equal to half the damage caused by the mass attack on Cologne, while only eight bombers were lost. For this raid No. 460 sent only three Wellingtons, the crews of which considered this the most successful raid to date. Among the other Australians engaged on this sortie Chapman again distinguished himself. His Wellington, slightly off track, was attacked over Holland on the outward journey by two Ju-88 night fighters, but Chapman shot one down in flames over its own airfield and shared with the new rear gunner in the destruction of the other, and the Wellington then proceeded unmolested to its target.

Only one of the targets, chosen in February from those lying on the central plain of Germany, was actually raided by Bomber Command during the following six months. Apart from the Ruhr, cities on the perimeter of the enemy defence system had been selected for experimental raids, to gather experience in long-range attack, timing and overcoming defences, before all these difficulties had to be faced on the one sortie. Berlin was, of course, the chief city of this target system, but Harris declined to attack the German capital until he could do so in real strength and with some hope of achieving damage commensurate with the effort involved.

³ F-Sgt P. Bell, 406589; 150 Sqn RAF. Farmer; of Dalwallinu, WA; b. Perth, WA, 29 Aug 1921. Killed in action 12 Aug 1942.

⁴ W-O D. W. Beattie, 408161; 150 Sqn RAF. Motor body builder; of Newtown, Tas; b. Hobart, 7 Mar 1919. Died of wounds 16 May 1946.

⁵ F-Lt A. V. Ritchie, DFM, 403378. 150 and 156 Sqn RAF. Solicitor; of Lindfield, NSW; b. Strathfield, NSW, 21 May 1913.

⁶ F-Lt C. O. Chapman, DFM, 403718. 150 Sqn RAF, 466 Sqn. Salesman; of Marrickville, NSW; b. Sydney, 30 Mar 1922.

During August, however, with crews now experienced in tactics of concentration, an approach was made to this problem by two medium raids on Osnabruck, followed by a heavier assault on Kassel (Table No. 17), the smallest of the inland primary targets, and the one requiring least penetration of enemy defences.

TABLE No. 17

OSNABRUCK AND KASSEL

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942									
Aug 9-10	Osnabruck	192	166	460	12	12	457	6	1
Aug 17-18	Osnabruck	129	112	460	5	5	275	4	—
Aug 27-28	Kassel	306	222	460	10	9	513	30	2

Damage inflicted by the two Osnabruck raids was small in relation to the effort expended, but it was useful in that it spread the threat of bombing over a new area. Casualties were not unduly heavy although German defences had obviously been strengthened for the second raid when Brittingham's Wellington was one of several attacked by persistent night fighters. The attempt against Kassel, however, showed plainly that Bomber Command had not yet solved the problems of night-bombing. Searchlights and guns backing the *Kammhuber Line* were very active and caused many bombers to lose position and to stray over other heavily-defended areas, where they were again engaged by ground defences. One Wellington of No. 460, hounded in this manner, finally attacked Dortmund, but the others, although split up, struggled on and six claimed attacks against the Henschel locomotive works at Kassel. Two Australian Wellingtons were shot down, and, in addition, one captained by Sergeant Wales⁷ was heavily damaged by gun fire while another, piloted by Sergeant Isaacson,⁸ was damaged by an enemy fighter. In all, thirty bombers (10 per cent of the force) failed to return, while little permanent destruction was caused in Kassel by the bombing.

While Bomber Command was attempting, with varying degrees of success, to strike concentrated hammer blows by night attacks against areas stipulated in the directive of February 1942, minor experiments

⁷ F-Lt A. W. Wales, DFC, DFM, 10991; 460 Sqn. Clerk; of Hawthorn, Vic; b. Melbourne, 6 Oct 1921.

⁸ W Cdr P. S. Isaacson, DFC, AFC, DFM, 401068. 460 Sqn, 156 Sqn RAF. Advertising agent; of Malvern, Vic; b. London, Eng, 31 Jul 1920.

and activities were also carried out. One daylight attempt on 17th April by twelve Lancasters to bomb the M.A.N. factory⁹ at Augsburg, which manufactured diesel engines for U-boats, was a heroic failure. Two Australians, Pilot Officer Sands¹ (No. 44 Squadron R.A.F.) and Flying Officer Ifould² (No. 97), navigated the leading aircraft in each box of six making this heroic attempt. Seven Lancasters failed to return, and this raid emphasised, if any emphasis were needed, that against existing German defences, heavy bombers could operate only by night. From time to time Whitley bombers, which had neither the "ceiling" nor speed to fit in with the requirements of mass timetable attacks, were sent against Italian cities, French U-boat bases, or even employed as intruder aircraft against French railways. Special raids were also made by small forces of more powerful bombers against targets of importance to the Admiralty, as on 28th-29th April, when eighteen Halifaxes and eleven Lancasters attacked the battleship *Tirpitz* at Trondheim, or on 27th-28th August when seven Lancasters attempted to cripple Germany's only aircraft carrier, *Graf Zeppelin* at Gdynia. The first of these raids was led by Wing Commander Bennett,³ who had pioneered the trans-Atlantic ferry service and had then rejoined the Royal Air Force to command Nos. 77 and 10 Squadrons R.A.F. He attacked *Tirpitz* at very low level and, his aircraft in flames, was forced to bale out in Norway. The loss of this outstanding leader was a severe one, for Bennett was that brilliant rarity—the almost-perfect pilot, navigator and engineer combined. Moreover, he had the gift of inspiring his squadron pilots with his own enthusiasm for training and thorough knowledge of all aspects of operational flying. Teamwork, discipline and ability were the qualities he strove for in Nos. 77 and 10 Squadrons, and he had great success in teaching pilots how to reduce petrol consumption on long trips by correct attention to detail in airmanship—a factor of prime importance with obsolescent Whitley aircraft. The absence of Bennett was, however, only temporary. The mainspring of his character, which developed his innate talents to such a high degree, was an almost superhuman blindness to difficulties, danger or the possibility of failure. With his second pilot, Bennett evaded German soldiers and police searching for his crew, and, after a most arduous journey across snow-clad mountains, reached Sweden. This adventure, which might easily have been the last in a life already overcrowded with incident, served for him merely as an additional spur, and he returned filled with determination to impress his genius over a wider field of action.

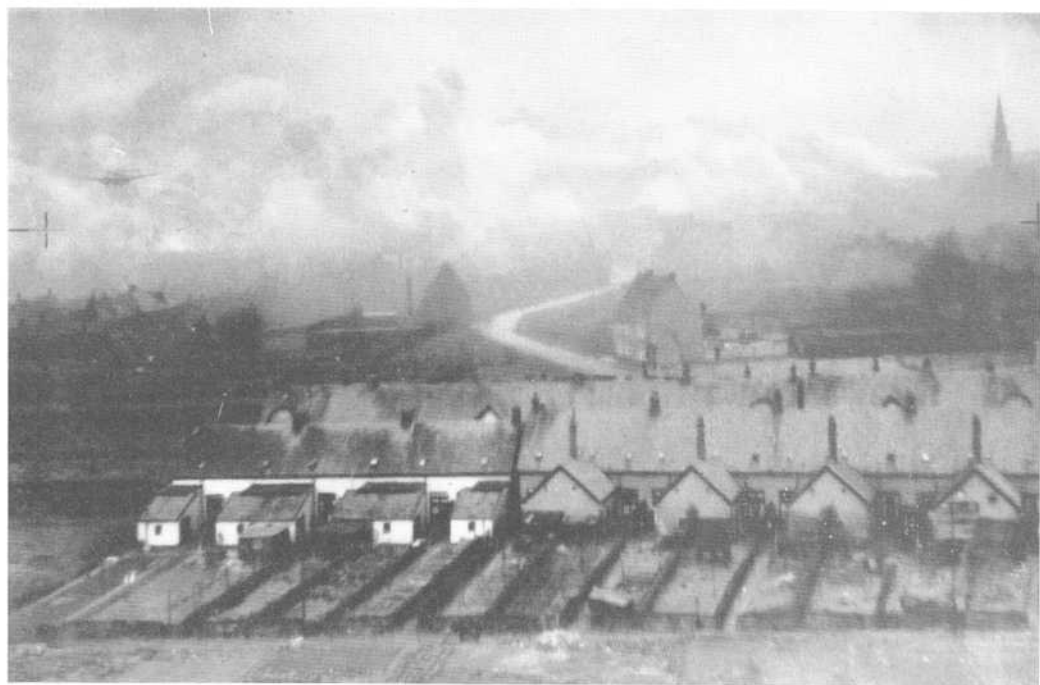
The light bombers of No. 2 Group continued to be used for tasks additional or complementary to the main pattern of night-bombing. Blenheims,

⁹ Maschinen-Fabrik Augsburg-Nurnberg Gesellschaft.

¹ Sqn Ldr D. O. Sands, DSO, DFC, 102110 RAF. 44 Sqn RAF, 467 Sqn. Architect; of Perth, WA; b. Albany, WA, 16 Dec 1911.

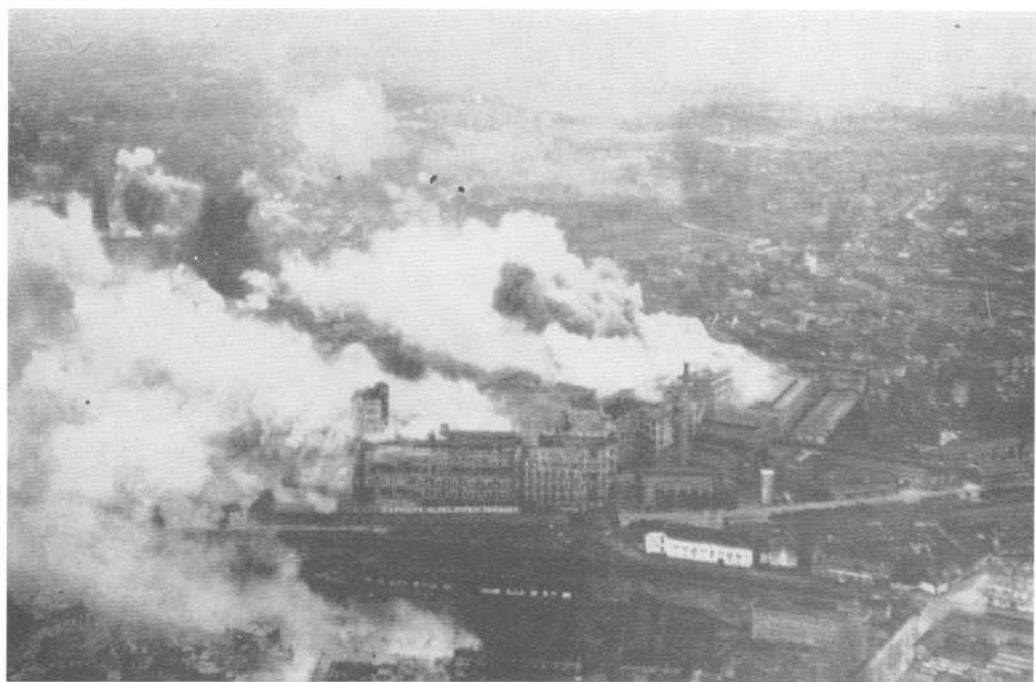
² Sqn Ldr E. L. Ifould, DSO, DFC, 402278. 97 and 109 Sqns RAF. Industrial chemist; of Turramurra, NSW; b. Adelaide, 6 Apr 1909.

³ AVM D. C. T. Bennett, CB, CBE, DSO, 32065 RAF. Comd 77 Sqn RAF 1941-42, 10 Sqn RAF 1942; AOC 8 Gp RAF 1942-45. Commercial pilot; of Auchenflower, Qld; b. Toowoomba, Qld, 14 Sep 1910.



(Air Ministry)

Soon after midday on 6th December 1942, almost 100 Mosquito, Boston and Ventura light bombers of Bomber Command made an experimental low-level attack on the Philips radio-valve works at Eindhoven, Holland. Smoke obscures the target in the latter stages of the attack. To the left a Ventura withdraws after completing its bombing run.



The Philips factory ablaze after the raid.

(Air Ministry)



(Air Ministry)

A Beaufighter Mark II of No. 456 Squadron at Valley airfield, Isle of Anglesey, in March 1942. Left to right: LAC Abbot; Sgt Pilot Stevens; LAC's Molloy, Gibson; Cpls Cooper, Thomas.



(R.A.A.F.)

Spitfires of No. 457 Squadron in formation, February 1942.

which could no longer safely operate by day, were used as intruders over enemy airfields whenever the main force struck at Germany. Sometimes only a few Blenheims were sent out in this way, but for important raids, such as those against Cologne or Essen, as many as forty-eight aircraft were used to harass enemy fighter bases. This activity was only partially effective in its aim, but it entailed relatively light losses. Several Australians flew on these duties and Pilot Officers Molesworth⁴ and Iredale⁵ both showed early the cunning of approach and utter disregard of enemy defences which alone could make these attacks successful. By August 1942 both were flight commanders of No. 114 Squadron. Iredale, in particular, applied himself to the task of mastering the complicated and constantly changing system of dummy sites used by the Germans to protect continental airfields, and spent hours reconnoitring for the benefit of all pilots. His most successful, though not most hazardous flight, was on 30th-31st May when he was detailed to attack Bonn. "They switched on the flare path to take off just as we arrived. They switched it off again rapidly. We circled at about 1,000 feet watching. Then they switched it on again and we came in and bombed just as the first heavy boys started dropping their stuff on Cologne." Meanwhile, other Australians were scattered among the Boston squadrons, used in daylight either for attacks on enemy coastal shipping or in the fight for air superiority over north-west Europe—but although mounted by Bomber Command these operations belong primarily to the pattern of Coastal and Fighter Commands.

⁴ Sqn Ldr J. R. N. Molesworth, DFC, 400520. 114 and 13 Sqns RAF. Grazier; of Coleraine, Vic; b. Melbourne, 30 Apr 1910.

⁵ W Cdr R. W. Iredale, DFC, 400590. 114 Sqn RAF; comd 464 Sqn 1944; W Cdr (Flying) 140 Wing RAF 1945. Salesman; of Horsham, Vic; b. Castlemaine, Vic, 31 Mar 1913.

CHAPTER 13

FIGHTER COMMAND IN 1942

IN January 1942, Fighter Command was in a unique position. Alone among the many commands of the Royal Air Force, it had sufficient squadrons, aircraft, trained pilots and ancillary organisations to pursue successfully its fundamental task of the air defence of Great Britain. The German night-bombing campaign had fallen away to a level of only 700 sorties during December 1941, compared with its peak of 4,445 during the previous April. Enemy effort was now mainly confined to coastal sectors, and German bombers had to face twenty-three night-fighting squadrons and well-equipped static defences designed to repulse far heavier raids. The principal English industrial areas thus enjoyed a high degree of immunity from attack at the time when general war needs called for the greatest possible production of munitions. Defence by day seemed even more secure, for, even had the Germans possessed an adequate bomber force, their fighters in western Europe were only one-third of the force assembled there in 1940 for the attempted assault on the United Kingdom. Fighter Command, which controlled seventy-five squadrons of single-engined fighters, had a distinct numerical advantage. Although operations in the autumn of 1941 had not achieved one of its objects, the forced return of German units from Russia, it had certainly wrested local initiative in the air from the enemy. Squadrons were progressively equipped with various types of Spitfire aircraft,¹ and operational training units were providing 350 pilots a month, far in excess of current battle casualties.²

Although Great Britain was adequately defended in the circumstances existing early in 1942, the best alternative employment for this powerful force was not clear. Paradoxically it had been strategic operations from Malta, and not Fighter Command's offensive, which had led to the first significant withdrawal of German air units from the Russian front. Fighter squadrons were required urgently in all other theatres of war, but once dispatched they could not quickly be recalled by sea to face any possible renewed enemy assault fed by squadrons withdrawn from eastern Europe along internal lines of communication. Thus, in December 1941, although seven squadrons destined for the Middle East had already been diverted to India, and many more were to follow during 1942, it was essential to retain in England a fighter force capable of meeting any emergency such as might follow a German victory in Russia. Accordingly, Fighter Command was authorised to continue with the same types of operations as during 1941 in a general offensive to exert pressure on German forces

¹ Modifications or "marks" of a basic aircraft design, represented sometimes the normal advance in performance through technical improvements, and sometimes the requirements of operating under special circumstances—ultra-high, high, medium or low levels—or Arctic, temperate or tropical climates. Similar changes were effected with the standard Me-109 which progressed through classifications 'D', 'E', 'F', 'G', etc.

² The monthly figure fluctuated according to weather. During 1941, 4,242 fighter pilots were trained.

in western Europe, thus relieving the air situation for the Russian allies. These offensive duties, spectacular but only partly successful in their main aim, had the important subsidiary objective of keeping the whole fighter force experienced in battle tactics. This was important, for not only were seasoned pilots continually withdrawn for oversea service, but approximately half of the total flying of Fighter Command continued to be concerned with coastal convoy protection and other necessary routine preventive patrols which evoked little or no action with the enemy.

The disposition of Australians within Fighter Command naturally reflected the counter-action of local aims and oversea requirements. The two *Article XV* Spitfire squadrons remained in England until the end of May 1942, when both (with an additional R.A.F. squadron) were withdrawn for service in Australia. In June, a third Australian squadron, taking the number plate of No. 453 Squadron R.A.A.F., which had disbanded after the Malayan campaign, began to form at Drem, near Edinburgh, and came into the line during August.³ The departure of Nos. 452 and 457 Squadrons, the only truly Australian-manned squadrons at that date, meant an inevitable hitch in the plans for concentration of R.A.A.F. effort overseas, because No. 453 could not possibly absorb more than a small fraction of the Australians already trained as fighter pilots. Accordingly, Australian pilots became as widely scattered in Fighter Command as in other commands, where crew composition was the divergent factor. This process was accelerated by the general abundance of pilots, resulting in the practice, in Fighter Command, of spreading available talent over all squadrons, and the natural highly-competitive desire of individuals to reach any squadron at all. Thus 240 Australians served for varying periods during 1942 on 51 day-fighter squadrons, 28 on 10 fighter-bomber and special-attack squadrons, and a further sprinkling of individuals among units conducting air-sea rescue, photographic-reconnaissance and army-cooperation duties. Numerical analysis alone, however, gives no real evaluation of the actual contribution, for by no means all these men were in action at the same time. There was a constant interchange of Australians and, during the year, 33 of these men returned to Australia; 48 were posted independently or with their squadrons to the Middle East; 26 went to India and 13 were transferred to R.A.A.F. squadrons. Several achieved local distinction, but the general background and purpose of their operations were identical with those of pilots in the *Article XV* squadrons. With so many variable factors operating, conclusive judgment is impracticable, but it is nevertheless plain that during 1942 Australians actually played a smaller part in Fighter Command than in Bomber, Coastal or Middle East Commands. The effort of Australians, including the squadrons, was never more and normally less than 4 per cent of the whole.

No. 456 Squadron remained at Valley throughout 1942. The airfield there had fine long runways and good approaches, and, because it lay

³ See D. Gillison, *Royal Australian Air Force, 1939-42* (in this series) for details of 453 Sqn's early history.

on the very edge of the sea, was less affected by weather than inland airfields. It was, as previously stated, conveniently situated for the defence of industrial areas in Lancashire, especially from raiders approaching up the Irish Sea. These factors all played a part on 10th-11th January, when approximately thirty-five German bombers attacked scattered points in northern England. Six of these raiders made a westward approach towards Liverpool, but ground mist covered all airfields in No. 9 Group, except Valley. No. 456 was still not fully operational after converting to Beau-fighters, but Squadron Leader Hamilton⁴ (Observer—Pilot Officer Norris-Smith⁵) was sent up to intercept these suspected mine-layers. Hamilton was directed by a ground-control station to the position of several of the enemy bombers, but in each instance contact was lost through a breakdown in the radio-telephone set. Hamilton persevered, however, and followed the raiders into a neighbouring sector. Here at last he was directed towards an aircraft flying at 12,000 feet. Hamilton was well instructed by Norris-Smith, who followed on his radar set the enemy's evasive course, giving clear and timely directions. After a seven-minute chase, Hamilton came close enough to the Do-217 to shoot it down with two bursts of gun fire.

This initial victory was gratifying, but it was plain that enemy aircraft entered the area only when they considered the defences would be disrupted by the weather. As news from the Pacific grew progressively worse, it was galling alike to ground staff and aircrews that they should continue to guard such a quiet sector. Throughout February aircrews were kept in a state of readiness, expecting to fly at any moment, but no enemy aircraft were encountered during the fourteen patrols actually flown.⁶ During March these training and uneventful routine patrols continued, but the squadron fell into a slough of despond. Weather was bad but the enemy was inactive; most patrols were by day; new pilots were arriving but experienced ones were being sent away to other squadrons, so that a general feeling arose that No. 456 was just a "glorified O.T.U.". There had also been little increase in the national character of the unit, for although 188 of the total 352 members were Australians, only three additional R.A.A.F. pilots joined the squadron before the end of April, and, meanwhile, four had been posted to Australia. Wing Commander Olive himself was ill during March and no suitably qualified Australian was available to succeed him. Thus, on 27th March, when Wing Commander Wolfe⁷ assumed command of No. 456, the commanding officer

⁴ W Cdr J. S. Hamilton, DFC, AFC, 73752 RAF. 256 Sqn RAF, 456 Sqn, 23 Sqn RAF, 418 Sqn RCAF; comd 613 Sqn RAF 1944; W Ldr 138 Wing RAF 1944-45. Regular air force offr; of Portsmouth and Swansea, Eng; b. Portsmouth, 1 Sep 1911.

⁵ Sqn Ldr D. L. Norris-Smith, 400309. 256 and 23 Sqn RAF, 456 Sqn, 96 and 68 Sqn RAF. Station overseer; of Deniliquin, NSW; b. Adelaide, 9 Oct 1916.

⁶ The state of readiness at Valley entailed long periods of waiting in the dispersal huts. Aircrew, in full flying kit, passed weary hours there, so as to be within a few moments run to their aircraft which were dispersed at intervals around the airfield, under any cover afforded by natural foliage or camouflage pens.

⁷ W Cdr E. C. Wolfe, DFC, 37705 RAF. 64 and 219 Sqn RAF; comd 141 Sqn RAF 1940-42, 456 Sqn 1942-43, 132 Wing RAF 1945. Regular air force offr; of London, Eng; b. Hong Kong, 11 Jun 1911.

and both flight commanders were English, while only ten of the twenty-three pilots were Australian. Another symptom of the general malaise was the strong desire of many of the ground-staff fitters to remuster to flight engineers for operations in Bomber Command. That this request was refused deepened the prevailing sense of frustration.

The weather began to improve in April and more flying was done than in any previous month. Twenty-nine operational flights, however, produced no contact with the enemy, who at this time was attacking chiefly Tyne-side and east-coast ports. May was a month of wind and variable weather, and the Beaufighters flew principally day sorties on convoy protection in the Irish Sea. This policy of superseding the day fighters on this duty during bad weather periods had begun in March, and was not without its compensations, for it was on bad flying days, when they hoped to avoid Spitfires, that enemy aircraft made their deepest penetration into these waters. The spirits of the squadron rose accordingly when Pilot Officer Wills,⁸ while on convoy patrol on 18th May, sighted a Ju-88 and shot it down after a twenty-minute chase in and out of cloud. On 20th June the next aircraft engaged during these patrols was also a Ju-88 but this time the fortunes were reversed. The Ju-88 fired first and damaged the port engine of the Beaufighter which had to put down in the sea although the crew was promptly rescued by a Walrus amphibian.

During April, May and June the *Luftwaffe* attacks, made as reprisals for the bombing campaign against Germany, had all been well clear of No. 9 Group area, but towards the end of July enemy aircraft twice made weak night raids in the Irish Sea area.⁹ On 28th July eight enemy bombers appeared over Cardigan Bay but unfortunately about thirty bombers from R.A.F. training units were also practising in the same area, and the Beaufighters intercepted three aircraft but found them all to be friendly. Two nights later, however, Wolfe obtained four radar contacts while on patrol. Two led to no sighting, the third to visual contact with a Ju-88 which escaped before he could attack, but the last ended in the destruction of an He-111. Wolfe's combat report gives a picture of the normal technique of the controlled night fighter at this period:

The second blip,¹ however, had not been lost [the other was the Ju-88] and now appeared ahead slightly to starboard and slightly above Beaufighter which was now flying at 8,000 feet. Beaufighter followed and enemy aircraft jinked making rate one, 50 degree turns.² Closing in I obtained a visual at 2,000-foot range, identified the enemy aircraft as an He-111, the exhausts on each side of the engines being very apparent. I closed in at an indicated air speed of 270-280 on enemy aircraft now descending slightly to port and fired a two-second burst with a slight port deflection at 250 yards followed by a second burst of one second at 150 yards' range.

⁸ F-Lt D. B. Wills, DFC, 115997 RAF. 456 Sqn, 68 Sqn RAF. Export clerk; of Heswall, Cheshire, Eng; b. Woodchurch, Cheshire, 16 Apr 1922.

⁹ The raids in Apr-Jun were mounted chiefly against non-industrial cities of historic importance: Bath, Canterbury, Exeter, Norwich, etc., and were popularly dubbed "the Baedeker Raids". Following Bomber Cdr's raid on Rostock, Hitler on 26 Mar made a speech in which he threatened to take reprisals and cross out the name of each British city in Baedeker's Guide to Gt Britain as and when it was destroyed.

¹ Indication on radar screen.

² Evasive manoeuvre—in this case turning 50 degrees off course to right and left alternatively.

No return fire resulted, the upper gunner having been shot through the head, the pilot's controls lost and the port engine put out of action during the first burst delivered. The He-111 now skidded off to port, jettisoning its bomb load of incendiaries and I broke away to starboard, closing in again to fire a two-second burst from 50 yards with no deflection, and breaking away violently to avoid collision. From this burst bright flashes and falling fragments from the fuselage resulted. A large dark object passed beneath the Beaufighter slightly to port. This is now presumed to be the port engine as this engine has not yet been found in wreckage. The enemy aircraft was well on fire by this time. Both aircraft were now losing height and I closed in to fire a final burst of one second at 150 yards' range with slight port deflection breaking off this last attack at a height of 4,000 feet, then climbed to starboard and levelled out. I saw the He-111 burning in fuselage and port wing and continuing to lose height very rapidly. It turned slowly toward Pwllheli . . . and when over beach at approximately 2,000 feet dived vertically, exploding and burning on the beach.

New improved Beaufighters (Mark VI with Hercules radial engines) were received by No. 456 during July, but there was little flying during the next three months and the only operational sorties were in daylight on convoy-escort³ or air-sea rescue duties. Some night practice flights were made in conjunction with searchlights to test a new technique by which searchlights were exposed in such a way as to silhouette a target against a "fan" background of light. This experiment was not popular with the pilots, but further successful exercises were then held in which the Beaufighters attempted to intercept, with the aid of searchlights, bombers from operational training units flying on cross-country trips.⁴ October was marked by a lamentable run of six accidents, including a fatal crash in bad weather at the neighbouring decoy airfield. Another crew failed to return from a night practice flight early in November. Winter conditions, combined with the absence of enemy activity, made a further reduction of the squadron's flying, and only a few precautionary patrols and air-sea rescue searches were flown before the end of the year. Although operationally disappointing, the squadron took comfort in the knowledge that it had eighteen well-trained crews, now predominantly Australian, and that the decision announced in December to re-equip No. 456 with Mosquito aircraft probably heralded a move to a more active sector.

The early months of 1942 were equally irksome for No. 457, also based in No. 9 Group. January and February were marked by uneventful convoy patrols and defence flights, while a big increase was made in the training program. Many pilots were posted to and from the squadron, which worked hard to keep its complement up to strength in anticipation of a move to No. 11 Group.⁵ At last these hopes were realised on 17th March, when news was received that the squadron was to replace No. 452 at Redhill.

³ Even this activity declined from 15 sorties during Aug to 5 in Sep, 3 in Oct and 3 in Nov.

⁴ These exercises which gave valuable practice to both fighters and bombers were called "Bullseye".

⁵ Apart from pilots transferred to 452, pilots destined for the Middle East and especially Malta were sent out at this time, with some mixed feelings of congratulation and envy among those who remained.

Alone among the R.A.A.F. fighter squadrons, January 1942 brought a freshening of interest for No. 452, but operations were mostly on a small scale compared with the impressive Circuses of the preceding autumn. On 3rd January Flight Lieutenant Thorold-Smith and Sergeant Williams⁶ made a Rhubarb attack against an alcohol distillery at Colleville and observed cannon strikes on the vulnerable top of the distillation tower and on storage tanks and other installations. Flight Lieutenant Truscott and Pilot Officer Sly made a similar surprise attack next day, the target this time being a canal lock at St Valery-sur-Somme. During the approach both pilots fired at a body of German troops and then damaged the lock gates with their cannon. Six Spitfires were sent to intercept enemy aircraft off Beachy Head on 5th January, and the same afternoon another two searched for enemy shipping off Le Havre, but neither sortie was successful. In an attempt to precipitate an air battle No. 452 took part in a Rodeo on 6th January, but although the wing "trailed its coat" off Mardick, no enemy planes took off to engage it. Four Spitfires were "scrambled" on 9th January to patrol between Dungeness and Beachy Head, but the expected raiders did not appear. Bad weather then interfered with operations until 22nd January, when No. 452 took off from Manston to give protection to mine-sweepers clearing an area where German bombers had recently been active. The patrol itself was successful but one of the experienced pilots, Flying Officer Lewis, had to bale out through engine trouble and was drowned.

Thorold-Smith and Pilot Officer Tainton discovered a small tanker moving northwards along the French coast on 25th January. The ship was escorted by four anti-aircraft trawlers and, before a large-scale fighter attack could be launched on the basis of this report, the ships had put into Boulogne. Later in the day the whole squadron was out with No. 485 Squadron R.N.Z.A.F. and a wing from Northolt, on an offensive sweep but only one Me-109 was seen and that was too far away to attack. This day, however, was an important landmark in the life of the squadron for Squadron Leader Bungey was posted to Shoreham and Flight Lieutenant Finucane left to command No. 602 Squadron R.A.F. Truscott took over command of No. 452 from Bungey and Pilot Officer Coker⁷ became flight commander of "B" Flight. The period of tutelage was now completely ended and, although Coker was posted next month to No. 41 Squadron R.A.F., another experienced Australian was immediately available, Pilot Officer Wawn being promoted to the vacancy.

An offensive sweep over the English Channel was made by No. 452 on 27th January, but no enemy aircraft were seen. Except for two defensive patrols, bad weather then kept the Australians inactive until 12th February, when they took part in the large-scale operations against the enemy naval squadron escaping from Brest. The feeling of baffled disappointment following this action was relieved somewhat by the destruction of a He-114

⁶ F-Lt R. R. Williams, 402675; 452 Sqn. Motor car valuator; of Sydney; b. Sydney, 26 Nov 1919.

⁷ F-Lt F. A. Coker, 402226. 457 and 452 Sqn, 41 Sqn RAF, 76, 75 and 85 Sqn. Electrical goods manufacturer; of Kogarah, NSW; b. Sydney, 18 Sep 1913.



Fighter Command: Australian activities, 1942.

float-plane encountered next day off Boulogne. This happened while eleven Spitfires, led by Group Captain Beamish,⁸ commander of R.A.F. Station, Kenley, were engaged on another offensive sweep. Truscott followed Beamish down and saw the Heinkel trying to alight on the sea. He saw shells from his cannon entering the cockpit and almost immediately the whole aircraft burst into flames. The remainder of the R.A.A.F. pilots followed and fired into the blazing mass which fell into the sea. This was perhaps too easy a victory to cause rejoicing, but it was the first since 8th November 1941, and indeed, the extreme caution of the German Air Force at this period gave little chance for any squadron to distinguish itself. Enemy fighter pilots made little attempt to challenge Fighter Command, except in circumstances where cloud and the technical superiority of the increasing proportion of the new radial-engined FW-190 would allow swift surprise attack. The Germans, as in the Middle East, often used decoys, and on 15th February two R.A.A.F. Spitfires on the Beachy Head patrol chased two Me-109's towards Cap Gris Nez only to fall themselves into a trap sprung by ten Me-109's and FW-190's which had been waiting in the clouds. One Spitfire escaped by taking violent evasive action and, using emergency engine power, outdistanced the pursuing Focke-Wulfs, but Flight Sergeant Harper⁹ was last seen still in hot pursuit of the original decoys.

After a fortnight of bad weather, Truscott led No. 452 on patrol on the morning of 28th February, but the formation was recalled early, though they were able to go out again the same afternoon when Kenley Wing flew a diversionary sweep, while other aircraft staged a fairly large-scale Ramrod against Ostend harbour. The Australians crossed the French coast, stepped up from 20,000 to 23,000 feet, and after penetrating some distance inland came out just south of Haredot without encountering any opposition. Another week passed with no operations, but on 8th March four Spitfires performed the Beachy Head routine patrol while the squadron took part in a Rodeo between Berck-sur-Mer and Le Touquet. The same afternoon No. 452 flew with Kenley Wing as escort cover to six Blenheims which bombed railway marshalling yards at Abbeville. All these flights produced no incident, but the Australians welcomed the reappearance of Circus formations as likely to provoke more positive enemy reaction than the customary sweeps.¹ This hope was quickly realised, for the following day while returning with six Bostons from a Circus at Mazingarbe, No. 452 was attacked by ten Me-109's which dived on them out of the sun, and later in the action some FW-190's also appeared. Truscott and Wawn each shot down one of the Messerschmitts when they first attacked near Lillers, but the enemy continued to follow our formation and another skirmish resulted over Haredot. Truscott turned and attacked

⁸ Gp Capt F. V. Beamish, DSO, DFC, AFC, RAF. Comd 504 Sqn RAF 1939-40, RAF Stns North Weald 1940-41, Debden 1941, Kenley 1942. Regular air force off; of Coleraine, N Ireland; b. Dunmanway, Cork, Eire, 27 Sep 1903. Killed in action 28 Mar 1942.

⁹ F-Sgt F. G. Harper, 404664; 452 Sqn. Salesman; of Northgate, Qld; b. Brisbane, 29 Jun 1913. Killed in action 15 Feb 1942.

¹ The last Circus had been on 8 Nov 1941.

one of the shadowing Me-109's, opening fire at 600 yards and closing in to 100 yards, after which the enemy broke away in a steep dive apparently damaged. The Australians lost one Spitfire in the later stages of this combat.

A Circus of ten Bostons bombed Hazebrouck on 13th March, and again acting as escort cover, No. 452 had to protect the bombers from opportunist enemy attacks. Truscott fired at and chased away several Me-109's in a violent series of combats. Sly, by pulling his Spitfire into a tight stall-turn, managed to get within fifty yards of an FW-190 which was attacking another aircraft in his section. His three-second burst of cannon and machine-gun fire struck the enemy aircraft immediately behind its engine cowlings and it staggered and flicked over in a vertical dive.

Kenley Wing again gave close escort to Bostons on 14th March, this time the target being an armed merchant ship sheltering in Le Havre. German fighters began attacking over the Seine estuary and Truscott shot down an FW-190 into the sea but then found himself alone with Sergeant Morrison.² They were followed for fifty miles out to sea by two Me-109's which made twelve determined attacks and shot away half the rudder of Morrison's Spitfire. Truscott turned several times to engage the enemy while Morrison came down low but found his aircraft fairly stable. In the last enemy attack Truscott almost rammed one Me-109 while Morrison courageously swung into a climbing turn from 50 to 300 feet and made a head-on attack against the other, which was claimed as probably destroyed.

Fighter Command had already made one sortie against this enemy ship earlier in the day, when Nos. 41 and 129 Squadrons R.A.F. were sent to escort Hudsons in a morning Roadstead operation. The Tangmere Wing found a 6,000-ton ship with an escort of mine-sweepers and anti-aircraft ships sailing one mile off shore near Fecamp and heading for Le Havre. After the Spitfires had circled for ten minutes, awaiting the Hudsons, enemy aircraft were seen approaching from Le Havre. No. 129 remained as top cover, while No. 41 dived to engage these planes, which were recognised as relatively slow Me-109E's. In spirited dog-fights which lasted for fifteen minutes, Coker and Pilot Officer Allen³ each claimed one victory. A second force of superior Me-109F's and FW-190's was engaged as it broke cloud by No. 129 and Pilot Officer Armstrong⁴ destroyed a further Me-109.

This week of combats, a brief recapture of the crowded hours of the preceding autumn, ended the career of No. 452 in No. 11 Group of Fighter Command. On 17th March Truscott, Wawn and four others were posted for return to Australia. Thorold-Smith took over command of the squadron which was, at the same time, withdrawn from the front line for a period

² F-Sgt J. McA. Morrison, 402522. 452 and 75 Sqns. Estate manager; of Grafton, NSW; b. Lismore, NSW, 1 Feb 1918. Killed in aircraft accident 28 Jun 1942.

³ F-O J. J. Allen, 404842; 41 Sqn RAF. Jackaroo; of Hughenden, Qld; b. Charters Towers, Qld, 21 Aug 1919. Killed in aircraft accident 20 Jun 1942.

⁴ Sqn Ldr H. T. Armstrong, DFC, 406022. 257, 129 and 72 Sqns RAF; comd 611 Sqn RAF 1942-43. Car salesman; of Perth, WA, and Sydney; b. Perth, 9 Jun 1916. Killed in action 5 Feb 1943. (Nephew of late Capt Hugo Throssell, VC, 10 Light Horse Regt, 1914-18.)

of rest and training. Sly was transferred as a flight commander to No. 457 Squadron which was to replace No. 452 at Redhill, but the remainder of the pilots had settled in at Andreas by the end of the month, and accepted philosophically the monotonous routine of uneventful convoy patrols and rigorous training which must ensue before the squadron again reached full efficiency.

No. 457 began to operate with No. 11 Group just after Fighter Command had been authorised to resume a full offensive. This decision was taken in the full knowledge that the enemy had experience of previous Circus attacks on which to model effective counter-measures, and in the FW-190 possessed an aircraft of superior speed, rate-of-climb and heavy armament which could turn the balance of advantage against the R.A.F. However, it was considered a worthwhile objective to contain in western Europe as many enemy fighters, especially FW-190's, as was possible even though it meant the loss of aircraft for aircraft. In this way not only would the main fighter force be kept gainfully employed and in position to ward off any sudden attack on England—but indirect assistance would be given to the Russian and Middle East air forces. To the individual fighter pilot these long-ranging considerations were subordinate to his natural desire to express himself in action, and to inflict as much damage on the enemy as opportunity allowed. He realised that the advent of the FW-190 made his task more difficult, but it did not blunt his determination to retain air supremacy, not only over England, but throughout normal fighter range from his base. It was in this spirit that No. 457 arrived at Redhill on 23rd March and waited impatiently for three days for its first offensive sortie against the Continent. The target was the same merchant ship at Le Havre which No. 452 had attacked twelve days before. Kenley Wing again acted as close escort for the twenty-two Bostons which bombed the dock area. Squadron Leader Brothers destroyed an Me-109 but Flying Officer Halse,⁵ second-in-command of "B" Flight, was himself shot down soon after leaving the French coast. Less satisfactory was a battle on 28th March, when, operating for the second time that day, Kenley Wing met between forty and fifty FW-190's and Me-109's near Cap Gris Nez. The twelve Australian Spitfires were flying at 17,000 feet and became engaged in a number of combats mostly with Focke-Wulfs. Sly claimed one victim which fell in flames, and other pilots scored hits on a second which was finally shot down by Finucane (No. 602 Squadron R.A.F.). Two Australians, however, failed to return, a third baled out in the Channel eight miles south of Dungeness and Sergeant Wright,⁶ badly wounded in one knee, had great difficulty in piloting his damaged Spitfire back to Redhill.

The scale of Fighter Command operations mounted rapidly during April reaching a peak on the 16th when over 1,000 sorties were flown.

⁵ F-O B. J. Halse, 402236; 457 Sqn. Clerk; of Bondi, NSW; b. Wellington, NZ, 10 Mar 1913. Killed in action 26 Mar 1942.

⁶ F-Lt W. H. Wright, 402270. 457 and 79 Sqn. Planter; of Samarai, Papua; b. Samarai, 8 May 1919.

The German Air Force countered this unremitting pressure with considerable skill, ignoring many sweeps and Circuses which, in any event, could cause only minor and temporary damage, but reacting violently and successfully at times when tactical and technical considerations were in their favour. The Australians flew an uneventful Rodeo on 2nd April, but two days later lost two Spitfires when they escorted Bostons to bomb the railway station at St Omer.⁷ Only a few defensive patrols were flown before 8th April, when No. 11 Group staged a large-scale Rodeo of seven wings (twenty-one squadrons). Nos. 457, 485 and 602 Squadrons (Kenley Wing) swept in company with Biggin Hill Wing over the Hardelot-Desvres-Guines triangle without becoming engaged, and the other wings met practically no opposition. Another combined Rodeo followed on 10th April but again no action resulted. From the Australian point of view, these parades in strength had the great value of familiarising the pilots with conditions over the Pas de Calais. Each flight averaged one hour and a half mostly over sea or over enemy-occupied territory, and individuals learned to appreciate enemy coastal batteries, the location and probable approach routes of German fighters, the problems of airmanship in conducting combats within a large fighter formation, and the best avenues of escape if hard pressed or damaged. These sweeps had the important subsidiary result of providing ceaseless reconnaissance and in restricting, during daylight, any important moves by enemy air, land or sea units within the patrolled area.

Rear cover was given by No. 457 to Bostons attacking marshalling-yards at Hazebrouck on 12th April, and although the Spitfires turned about and patrolled from Cap Gris Nez to Gravelines after the bombers had withdrawn safely, they encountered no pursuers. The same afternoon the Australians gave protection to rescue launches operating twenty miles east of Deal. On 13th April, ten defensive patrols and one Rodeo were flown, but impatience for combat was not satisfied until the following day, when the squadron was required to fly a diversionary sweep late in the afternoon to draw enemy fighters from a Circus sent at the same time to bomb the power house at Caen. Accordingly twelve R.A.A.F. Spitfires left Redhill at 5.40 p.m., joined Nos. 485 and 602 Squadrons, and then rendezvoused with Biggin Hill and Hornchurch Wings over West Malling at 10,000 feet. The whole formation crossed the French coast at Le Touquet, swept over Desvres and back over the coast between Calais and St Inglevert. The Australians flew at 22,000 feet as the middle squadron of Kenley Wing with both the other wings disposed above them. Ground opposition was very marked and a number of shells burst close to No. 602. No enemy aircraft were seen until the turning point towards the coast, when small formations of FW-190's, numbering from two to ten aircraft, penetrated the Rodeo formation. These enemy aircraft made repeated diving attacks on both No. 457 and No. 602, climbing back quickly to rejoin their own groups, without attempting to force a general battle with

⁷ In the whole operation 11 Spitfires were shot down while only 4 enemy aircraft were claimed as destroyed.

the numerically superior Spitfires.⁸ Many brief combats took place, some being head-on encounters with both aircraft firing at each other before passing one beneath the other. Nine of the R.A.A.F. pilots fired during one or more of these attacks without seeing any results. Pilot Officer MacLean,⁹ however, turned quickly after an FW-190 which dived past him to attack another Spitfire, and, closing in to within seventy yards of the enemy, MacLean scored many effective strikes with cannon and machine-gun fire and sent the Focke-Wulf spinning down out of control. Although the Australian formation became split up during this engagement, all the aircraft returned safely.

The pilots of No. 457 had now settled down well in their offensive role and joined eagerly and with confidence in the very large-scale effort which was made by Fighter Command. They shared in two operations on 15th April, flying in a Rodeo over Gravelines during the morning and then, with eleven other squadrons, giving target support to eight Hurricane bombers which attacked Desvres airfield. Kenley Wing was out again early next morning as top cover to Hurricanes sent to attack Dunkirk. While the actual attack was protected by North Weald and Biggin Hill Wings, No. 457 crossed the French coast east of Dunkirk, swept to Bergues and flew out over the Channel at Gravelines. After a few minutes, the wing turned and flew a second circuit of this cordon around Dunkirk.

Immediately after crossing the coast for the second time four FW-190's were seen getting into position for an attack on No. 485 Squadron, and to prevent this, some of the Australian pilots fired at long range, while Flight Lieutenant North,¹ who was leading No. 457, closed in on two of the enemy and claimed one as probably destroyed.

Perfect spring weather on the 17th enabled Fighter Command to mount seven large, offensive operations. In addition to the intrinsic value of these as part of the long-range struggle for air supremacy, they had the special object of exhausting enemy fighter endurance by the late afternoon, when the raid by Lancasters against Augsburg was to take place. The Germans, however, reacted cautiously against light-bomber attacks on fringe targets and were still able to oppose and inflict heavy casualties on the Lancasters. The Australians' part in the day's activity was small and uneventful. During the morning the Spitfires escorted Bostons against the ammunition factory at Marquise, and later in the day they acted as high cover to another force bombing a power station at Grand Quevilly, but on neither occasion did they encounter enemy aircraft.

A week of bad weather halted these impressive daily excursions of Fighter Command. From 24th April until the end of the month, however, the Australians flew two operations each day except on the 29th when only one sweep was carried out. Only once, on the 27th, did enemy

⁸ About 20 FW-190's were seen. The 3 RAF wings, had they all been free to engage, totalled 108 Spitfires.

⁹ F-Lt D. H. MacLean, 404652; comd 457 Sqn 1945. Planter; of Rabaul, New Guinea; b. Strathfield, NSW, 18 Dec 1916.

¹ F-Lt H. L. North, 41608 RAF. 43 and 96 Sqn RAF, 457 Sqn. Regular air force offr; of Dunedin, NZ; b. Dunedin, 31 Oct 1919. Killed in action 1 May 1942.

fighters attack. On this occasion North was leading No. 457 in top-station of Kenley Wing as escort cover on the port side of twelve Bostons. The route employed was from North Foreland to a point ten miles east from Dunkirk, and then direct to Lille, the return track crossing the coast west of Calais to avoid enemy defences already alerted. At 3.40 p.m. as the bombers neared Lille they were intercepted by ten FW-190's which were successfully driven off by the Spitfires, North claiming one as damaged. The escort fighters were now somewhat mixed up and Sly, hearing the wing leader detail aircraft of No. 602 to protect a straggling flak-damaged Boston, fell back with two other pilots in his section as he was already close to the crippled aircraft. From St Omer to the coast repeated enemy attacks were made on this bomber, but Sly managed to intercept several of the FW-190's and claimed one as destroyed and another as damaged. The Boston was escorted safely across the coast but with one engine trailing smoke it then turned about to make a forced landing in France. The Spitfires themselves were now attacked but Sly after firing two short bursts dived down to sea level and made his escape. One Australian did not return and was last seen near Lille.

During the last week of April, enemy aircraft if they appeared at all, attacked squadrons on the fringes of the large fighter formations. However, over Campagne at 5.45 p.m. on 24th April, when No. 457 was flying at 23,000 feet, six FW-190's were seen below and Pilot Officer Watson² dived down and damaged one during a brief combat. The whole squadron became involved in a *mêlée* two days later, when No. 457 became separated from Kenley Wing during a sweep over Cap Gris Nez and fell in with ten FW-190's. Seven of the Australian pilots fired in a confused engagement and all returned safely, claiming damage to two Focke-Wulfs. On 29th April, in the same area, another battle developed during a diversionary sweep by nine squadrons in support of a Circus at Dunkirk. Twelve FW-190's appeared, but the Spitfires held the advantage of height and the enemy fighters were driven off, one probably destroyed by Brothers and a second one damaged by MacLean.

No. 457 had thus flown, during its first full month of operations, 376 sorties of which all except forty-four were flights involving penetration of enemy territory. The Fighter Command offensive continued on much the same scale during May, and in the first nine days, the Australians flew 7 sweeps and 6 Circuses besides providing a further 12 aircraft for coastal patrols. The pattern of operations, the areas patrolled, even the Circus targets, were in general the same as during April and on only two Circuses and one sweep did No. 457 meet any opposition. The sweep encounter on 4th May was a fleeting engagement but, on 1st and 9th May, bitter German attacks were made and on each occasion two Spitfires were shot down. This second reverse was again followed by a week of bad weather, and even on the 17th, when large-scale flying was again possible, the Australians conducted only protective coastal patrols and air-sea rescue

² F-Lt P. H. Watson, DFC, 402267; 457 Sqn. Accountant; of Sydney; b. Melbourne, 9 Feb 1915.

searches. Five more Rodeos, however, were flown before the end of May but these also were uneventful. On the 31st the squadron was withdrawn from No. 11 Group and was sent to Kirton-in-Lindsey, Lincolnshire. This move gave satisfaction to some pilots and ground staff as it was correctly guessed to be in preparation for return to Australia.³ Although, after waiting impatiently for so long a period, the stay of No. 457 in the front line of Fighter Command thus lasted only two months, altered circumstances both in Europe and the Pacific contributed to this satisfaction. No 457 had flown even more intensively than No. 452, but enemy caution and the technical superiority of the FW-190 had prevented it from achieving outstanding victories; at the same time Australia appeared in danger of imminent invasion.

On 18th June 1942, three days before Nos. 452 and 457 sailed for Australia, No. 453 Squadron R.A.A.F. began to re-form at Drem on the Firth of Forth. Twenty-three inexperienced or partly-experienced Australian pilots were available almost immediately but the first commanding officer was an Englishman, Squadron Leader Morello.⁴ Three English, one Canadian and three Polish pilots were also attached to the unit during its first formative months. No Australian maintenance crews were available at first, as almost all suitably qualified men had already been posted to Nos. 452 and 457. From August onward, however, Australians began gradually to replace men provided by the Royal Air Force. There was from the outset intense enthusiasm animating the new squadron which profited greatly, both in the air and on the ground, from assistance given by No. 242 Squadron R.A.F., a fully-operational unit with which the Australians shared the airfield. The first two months were employed in formation flying and gunnery exercises, camera-gun attacks and mock combats, comprising a total of 747 hours flying; together with ground instruction and lectures on tactics. By 10th July, No. 453 was able to provide emergency readiness sections, and five days later, fifteen of the Australians were classed as fit for day operations. Training, however, continued to be the main commitments of the squadron even after 12th August, when convoy and interception patrols began over the Firth of Forth. This very thorough preparation for battle ended on 14th September, when the unit was ordered to Hornchurch in No. 11 Group. After several changes, both flight commanders were now Australians, Flight Lieutenant Ratten⁵ joining "A" Flight on 4th August, and Flight Lieutenant Yarra, who had earned a fine reputation during the mid-summer battles over Malta, taking command of "B" Flight on 14th September.

The conditions which No. 453 met in the front line were very different from those experienced by No. 457, which in turn had operated in circum-

³ On 31 May, 457 Sqn operational record book commented "many are sad, some are happy".

⁴ W Cdr F. V. Morello, 39256 RAF. 501, 249 and 33 Sqs RAF; comd 112 Sqn RAF 1941-42, 453 Sqn 1942. Regular air force offr; b. Shillong, Assam, India, 21 May 1916.

⁵ W Cdr J. R. Ratten, DFC, 405111. 72 Sqn RAF; comd 453 Sqn 1942-43, RAF Stn Peterhead 1943-44, 11 PDRC RAF 1944-45. Mining engineer; of Launceston, Tas; b. Sheffield, Tas, 13 Nov 1912. Died on active service 27 Feb 1945.

stances markedly in contrast with those enjoyed by No. 452. Between May and September a revision of Fighter Command tactics had been necessary. Large-scale sweeps of up to twenty squadrons of Spitfires precipitated no widespread air battles. Indeed, these formations tended to be too rigid and the Germans made opportunist attacks against flank squadrons, shot down one or two Spitfires and retired quickly before they themselves could be brought to bay. These enemy tactics were generally successful when the FW-190 was employed, and from the end of June Fighter Command, in certain weather conditions, was forced to cancel operations. The desired effect of influencing Germany to retain her best fighters in north-west Europe had been achieved, but it was temporarily imprudent to seek battle merely for battle's sake while the FW-190 remained superior to current Spitfire models. The offensive was accordingly pressed by fleeting raids of the Rhubarb type in which only a few aircraft participated. These increased in number from 38 in June to 738 in July. The Circus, designed primarily to goad enemy fighters into action, was replaced by the Ramrod, an operation in which larger forces of more powerful bombers had, as their main objective, the destruction of a worthwhile ground target, and the fighters, although present in the same numbers as for the Circus, had a more purely defensive role.

On 18th-19th August Fighter Command was called upon to support an attack by naval and land forces against Dieppe. This reconnaissance in force was planned to provide information on which could be based preparations for a full-scale invasion of the Continent, the ultimate aim of Allied strategy. The air objectives were primarily to obtain and hold air mastery over the English Channel and the port of Dieppe so that surface forces could fulfil their tasks without interference from enemy bombing; secondly, to force the Germans into a heavy air battle; and thirdly, to gauge the tactical support it would be possible to give to landing parties. No. 453 was not ready to participate but it lent some of its aircraft to No. 242 which travelled south on temporary attachment to No. 11 Group, while the Australians undertook the main defensive duties of both squadrons in the Edinburgh sector. The contribution of individual Australians over Dieppe was thus relatively small because in all over 2,400 sorties were flown, but their operations illustrate the main features of Fighter Command activity. Flying Officer Brown⁶ of No. 140 Squadron R.A.F., flew several photographic sorties before the assault to discover the disposition of enemy ground defences. At 4.20 a.m. on the 19th, air operations began with light-bomber attacks against these known gun sites. Hurricane-bombers, Hurricanes and Spitfires then maintained strafing attacks against the same positions while other fighters escorted smoke-laying aircraft ahead of the invasion fleet. Flight Lieutenant Andrews⁷ led a flight of No. 175 Squadron R.A.F. in the early-morning offensive

⁶ F-O E. H. Brown, DFC, 402724. 140, 18 and 682 Sqns RAF. Bank clerk; of Upper Undulla, Tara, Qld; b. Toowoomba, Qld, 9 May 1918. Killed in aircraft accident 5 May 1943.

⁷ W Cdr D. G. Andrews, DFC, 404795. 615, 245 and 175 Sqns RAF; comd 453 Sqn 1943-44; W Cdr (Flying) RAF Stn Coltishall (W Ldr Aust Wing) 1945. Bank clerk; of Southport, Qld; b. Southport, 5 Sep 1921.

and dropped two 500-lb bombs on an enemy battery just as the assault boats were heading towards the shore. Later in the day, at 11 a.m., he made a second attack against guns firing at the naval force as it withdrew. Three Australians with No. 174 performed similar tasks, one of them, Pilot Officer Watson,⁸ being shot down into the harbour and captured. Escort was given by Spitfires on a lavish scale to these ground-attack aircraft, to the naval and troop-carrying ships, and to American bombers, which were sent to limit enemy activity from Abbeville airfield. At first German reaction in the air was slight until 9 a.m., when determined attempts were made by bombers and fighter-bombers to attack the shipping lying off Dieppe. Only one ship was lost, however, through enemy bombing, as the total German effort amounted to only 700 sorties and Spitfires held a numerical advantage throughout the day. A typical defensive success was gained during his third sortie for the day by Pilot Officer Mawer,⁹ when he shot down a Do-217 and drove off two others which attempted to bomb the convoy as it returned across the Channel. Fighter Command lost ninety-eight aircraft during the day but this, although double the enemy loss, was not inordinate in relation to the general success of the operation, which proved that German defences could be swamped.¹ The defence of the convoy was especially successful despite the fact that Air Commodore Cole, who accompanied the naval force as coordinating officer, was severely wounded when German fighters machine-gunned the bridge of H.M.S. *Calpe*, the headquarters ship from which he was directing air operations.

By September 1942, when No. 453 came into the front line at Hornchurch, some squadrons of Fighter Command had been re-armed with Spitfire IX aircraft. These were able to engage FW-190's on fairly even terms and consequently were employed, whenever possible, as close-support fighters during Ramrod operations. Another fighter of superior performance, the Typhoon, also appeared in small numbers and these were used to give withdrawal cover to bombers. Squadrons like No. 453, which were still equipped with Spitfire VB aircraft, were employed on high-cover duties or on diversionary sweeps, if indeed they were employed offensively at all.² This tactical factor, coupled with the natural reduction in operations during winter months, gave the new *Article XV* squadron

⁸ F-Lt C. B. Watson, 400849. 607 and 174 Sqns RAF. Salesman; of Elwood, Vic; b. Carlton, Vic, 23 Nov 1915.

⁹ F-O G. A. Mawer, 403112. 245, 501 and 54 Sqns RAF, 452 Sqn. Bank clerk; of Manly, NSW; b. Canterbury, NSW, 31 Oct 1919. Killed in action 26 Sep 1943.

¹ German appreciations made shortly after the raid showed general satisfaction with the defending bombers and fighters especially the FW-190's. However, *Luftflotte 3 HQ* on 28 Aug expressed some concern at the aircraft position:

"Do-217 losses were made good by the immediate dispatch of 27 aircraft from the Luftflotte aircraft forwarding centre. To replace lost FW-190's the last 18 aircraft were released from the forwarding centre at Wevelghem. By evening of the day of the landing only 70 of approx. 230 fighter aircraft available in the morning were still serviceable. By morning of 20 Aug serviceability had risen again to 194 aircraft as a result of repairs carried out and replacements brought up during the night. If the operation had been extended over several days, the operational strengths of fighter and bomber formations would have been reduced considerably as there were no further Luftflotte reserves available."

² The vast air armadas of the spring had given way to closely-knit complementary operations each day. Sweeps and small Ramrods against airfields were timed to preoccupy enemy forces while the main striking force attacked the chosen primary target.

little chance to distinguish itself. Indeed, although No. 453 flew 404 hours on 311 sorties during October, the greater part of this effort was applied to protective patrols off the North Foreland and in the Thames estuary. This defensive flying was increasingly necessary as the Germans, partly copying Rhubarb attacks, and partly developing their own economical nuisance tactics employed in the Middle East, sent fighters and fighter-bombers on hit-and-run raids at widely separated points on the English coast. In cloudy weather, when it was difficult for fighters to operate, small numbers of German long-range bombers operated singly over widespread areas of England in daylight. These enemy flights were directed at causing the maximum possible disturbance to industry, not so much by physical damage to factories, but by alerting air raid sirens and thus enforcing loss of time while workers sought shelter. As these intruders could approach anywhere on a broad front, they were very difficult to oppose except by heavy standing patrols which would have halted the R.A.F. offensive. In practice, therefore, some extra patrols were flown but the risk of occasional enemy penetration was accepted as the price for continuing operations over the Continent.

On 2nd October, offensive operations began for No. 453, the day on which it moved for a week's detachment to an airfield at Southend. Coordinated bombing attacks had been planned for Bostons against Le Havre, and for Fortresses against an aircraft factory at Méaulte and the airfield at St Omer. Ratten led eleven Spitfires as part of Hornchurch Wing which flew as high cover to the St Omer attack. The Australians swept between Ostend-Ypres-Dunkirk at 28,000 feet without being engaged, although at lower levels the North Weald and Debden Wings giving close escort to the Fortresses met bitter opposition. Ratten also led No. 453 on a low-level search for enemy shipping between Boulogne and Cap Gris Nez on 6th October, but no targets were found.

Hornchurch and North Weald Wings flew a sweep over St Omer on 11th October, and, on this occasion, the Australians were shadowed on the return flight by six FW-190's. No actual attack was made, but two Spitfires which were keeping rearguard watch collided and both crashed into the sea. Next morning Whirlwind bombers were escorted against German E-boats reported off the French coast but these were not found, nor was there any air reaction. Weather prevented any further large-scale operations and, although No. 453 took off on 17th October to escort Bostons to Le Havre, the Spitfires were recalled and the attack was cancelled. The only other offensive sortie of the month was a Rhubarb flown by two aircraft on 27th October, but even this was abortive.

Defensive flights were likewise uneventful, except on 31st October, when eighteen sorties were made on the standing patrol off North Foreland and to escort a convoy in the same area. One Spitfire developed engine trouble and crashed into the sea, but the afternoon was otherwise uneventful until 5 p.m. Then, just after Pilot Officer Barrien³ and Flying

³ F-Lt J. Barrien, 407747; 453 Sqn. Engineering student; of Toorak Gardens, SA; b. Adelaide, 5 Apr 1919.

Officer Galwey⁴ had been relieved on the convoy patrol and were returning to base, they saw a mixed force of enemy fighters and bombers approaching the coast. The two Spitfires immediately rose to attack a group of eight FW-190's and Barrien fired, head on, at one before diving away and returning to Manston. Galwey attacked four enemy aircraft but was himself shot down into the sea, whence he was rescued at dawn next day after an uncomfortable night in his dinghy. The two Spitfires maintaining the Forelands patrol also saw this enemy force crossing the coast near Deal. Pilot Officer Blumer⁵ damaged a Ju-88 and then turned with Sergeant Swift⁶ to attack an FW-190 which they chased half way across the Channel before they, too, had to return through shortage of fuel. Two pilots arriving soon after to relieve Blumer and Swift also fired, from long range, at two FW-190's which turned tail and headed out to sea. The enemy raid was mounted against Canterbury.

On 1st November, Ratten was promoted to command No. 453, so that the aircrew complement was, for the first time, wholly Australian. Consistently bad weather, with low cloud and thick ground haze, severely limited all flying during November while the seasonal decline in offensive activities made this a very quiet period. Two uneventful sweeps, two abortive Rhubarbs, and a moderate effort on defensive convoy patrols, a total of fewer than 100 operational hours flying, was all that could be attempted before the Australians moved, on 24th November, to engage in an air-firing course at Martlesham. Here they remained until 6th December, gaining the best average squadron score since the inception of this special training, with Swift breaking the previous individual record for hits on the target.

Instead of returning to Hornchurch, No. 453 was ordered to move to Southend, but came back into the line too late to join in the large-scale attack on 6th December against Philips' radio works at Eindhoven, Holland, which marked a new development in joint fighter and bomber attacks. This experiment of using the new force of Ventura bombers (together with the Bostons and Mosquitos) was not immediately repeated and No. 453 was given only three sweeps to perform during December. No contact was made with enemy aircraft. The fighter squadrons, however, were ordered to take special notice of enemy shipping attempting to move under the cover of the prevailing bad weather, and it was while on shipping reconnaissance that No. 453 engaged in its only combat for the month. On 10th December Yarra was leading six Spitfires when he sighted four small coastal vessels in convoy with an anti-aircraft ship, ten miles north-west of Flushing. The Australians attacked immediately and were met by accurate concentrated fire from all the ships. Many of these gun posts were silenced and fires broke out on one ship, but Yarra

⁴ F-Lt G. G. Galwey, 404811. 453 and 79 Sqn. Grazier; of Ravenshoe, Qld; b. Sydney, 19 June 1910.

⁵ F-Lt A. G. B. Blumer, DFC, 411733. 453 Sqn, 601 Sqn RAF, 452 Sqn. Bank clerk; of Croydon, NSW; b. Gosford, NSW, 5 May 1922.

⁶ F-O N. F. Swift, 411404. 453 Sqn, 80 and 137 Sqn RAF. Departmental manager; of Warrawee, NSW; b. North Sydney, 28 Jun 1920.

and Pilot Officer de Cosier⁷ were themselves shot down and killed during the initial attack against the flakship.

The varying operational conditions experienced by the three R.A.A.F. squadrons coincided with the normal activity of Australian pilots serving during 1942 on R.A.F. Spitfire units. Air fighting had become far more complex than in the early days of heroic single combat, and the individual was now submerged in his squadron, itself part of a wing which was only a fraction of the total force sent out often with indirect quasi-political, rather than direct military, aims. These mass demonstrations proved that, with bearable losses, local and temporary air superiority could be achieved over enemy territories within range of Fighter Command bases. This ability could have no final military result in itself, for the attrition of German fighter strength, during heavy battles in spring and summer, led only to temporary weakness, which could be overcome from as yet untouched training and industrial resources during the months of bad weather. Therefore, although Fighter Command could not succeed as a vital offensive weapon, the experiments with increasingly-large bomber forces and the invasion attempt at Dieppe defined its major role in creating an air situation in which other forces, more likely to produce decisive military results, could operate safely.

Even though dwarfed by the large formations in which he flew, and which necessarily limited his freedom of action, it remains true that the fighting spirit, airmanship, instinctive reaction and shooting ability of the individual pilot, had a large part to play in the success or failure of the struggle for air supremacy. Outstanding among R.A.A.F. pilots was Armstrong, who served successively with Nos. 129, 72 and 611 Squadrons R.A.F. during 1942. Armstrong's keenness to engage the enemy brought him early prominence while flying with Tangmere Wing and he was quickly elevated to be a flight commander of No. 129 Squadron. His judgment and skill as a leader brought further successes, and by May he was credited with the destruction of five enemy aircraft. After similar service with No. 72 Squadron, he was posted to command No. 611 Squadron and by the end of the year had claimed another four enemy victims. Perhaps his greatest attribute was his ability to control his flight or squadron to best advantage on escort work, so that he always had a tactical advantage over enemy fighters which tried to break through to the bombers; he never overlooked defensive responsibilities but, once battle was joined, he showed, in the highest form, the courage, initiative, judgment and skill which marks the truly-great fighter pilot.

The onerous patrols maintained by all Fighter Command groups, although they lacked the excitement and popular appeal of the main air battle, served the vitally important purpose of restricting to a minimum enemy offensive and reconnaissance flights. Here again R.A.A.F. contribu-

⁷ P-O M. H. I. de Cosier, 405575; 453 Sqn. Student; of Sutton's Beach, Qld; b. Melbourne, 3 Oct 1922. Killed in action 10 Dec 1942.

tion was isolated and episodic. On 27th May Allen of No. 41 Squadron, who had already distinguished himself on offensive sweeps, was patrolling between St Catherine's Point and Selsey Bill when he saw an Me-109F fighter-bomber attempting to sneak into the Solent at wave-top height. He chased the enemy who attempted to turn out to sea but was finally engaged and shot down over the Isle of Wight. Another typical successful interception, this time against a reconnaissance plane, came on 5th September, when Flight Sergeant Creagh⁸ and Sergeant Gregory⁹ of No. 610 Squadron R.A.F. were sent up from Ludham (Norfolk) in No. 12 Group to patrol at 23,000 feet. They were then vectored on to two high-flying enemy aircraft, one of which dived and flew away as soon as the Spitfires approached. The second aircraft, now seen to be a camouflaged Me-210, was chased for ten minutes; first Creagh and then Gregory attacked from very close range before the Messerschmitt, with one engine on fire, turned on its back and crashed into the sea thirty miles east of Southend.

⁸ F-Lt S. C. Creagh, 405123. 610 Sqn RAF, 457 Sqn. Clerk; of Malanda, Qld; b. Sydney, 22 Jan 1920.

⁹ F-Lt R. H. W. Gregory, 401944. 610 and 84 Sqn RAF, 457 Sqn. Pharmaceutical chemist; of Brighton Beach, Vic; b. Yarragan, Vic, 15 Oct 1915.

CHAPTER 14

AFRICAN CAMPAIGNS: SEPTEMBER TO DECEMBER 1942

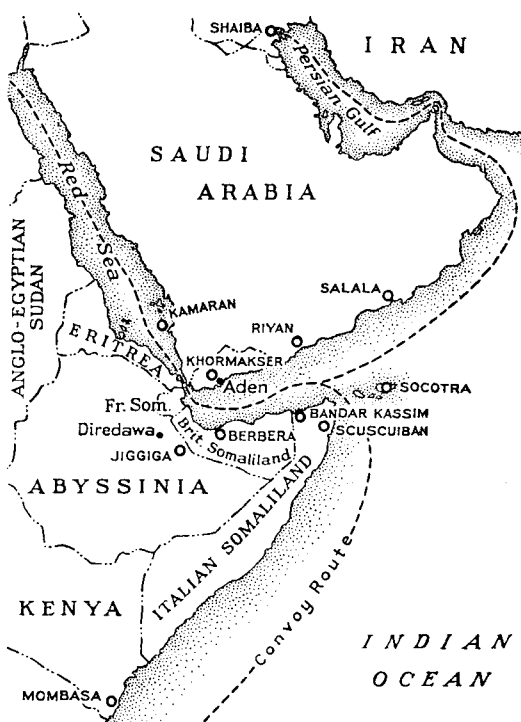
IMMEDIATELY after the failure of the Axis attempt to break through to the Delta in September 1942, the British Eighth Army began to prepare for a full-scale offensive, timed to take place about the middle of October. During the preparatory weeks of strengthening and regrouping both land and air forces, the R.A.F. had four main operational aims to ensure that this time the enemy would be swept right back into the central Mediterranean. Firstly, the British supply lines by land and sea to the Middle East must be guarded, then essential supplies, especially of fuel, must be denied to the enemy; ascendancy must be gained and held over the *Luftwaffe*, and sustained attacks must be continued on a limited scale in the battle area proper.

At the end of August a scheme for continuous convoy escort had been adopted in the Red Sea and Persian Gulf areas where it was expected that both German and Japanese submarines had begun to or would operate. As will be implicit in the operations described in this chapter this was a false assumption. U-boats did not arrive there until mid-1943. One or two Japanese submarines were operating in the Aden area in September 1942, but the threat did not attain large proportions. Since the elimination of Italian naval units in East Africa only light patrols had been required, but now the immense flow of men and equipment from Britain and America, and of fuel from Persia to Egypt appeared to be endangered. The Persian Gulf was also a main channel for Allied supplies to Russia, doubly important since the virtual annihilation of the convoy PQ-17 in June 1942 had forced a temporary cancellation of sailings to North Russia. To meet this new threat the R.A.F., like the navy, mostly had to employ existing and often second-rate facilities because little extra help could be spared from elsewhere. The success of this intensive and wearisome flying depended therefore on the alertness and stamina of crews. Fifteen Australians operated with Blenheims of No. 244 Squadron R.A.F. from Shaiba, six more with Catalinas of No. 209 from Mombasa, and twenty with No. 8 which though based at Aden, sent its Blenheims on detached flights at Bandar Kassim, Kamaran, Berbera, Riyan and Jiggiga. On 10th September, to assist the Blenheims which had no radar, three Hudsons of No. 459 Squadron R.A.A.F. were ordered to Aden under the command of Squadron Leader Howson. He, however, handed over almost immediately to Flight Lieutenant Beaton,¹ because he was himself recalled to replace Wing Commander Hennock in command of the main squadron. Australian maintenance crews accompanied the aircraft and by intelligent improvisation kept them almost continuously in readiness for patrols. Despite the rugged

¹ Sqn Ldr D. C. Beaton, DFC, 406370. 459 Sqn, Levant Commn Unit RAF, 454 Sqn. Station manager; of Perth, WA; b. Geraldton, WA, 6 Jul 1910.

scenery and intense heat at Aden, the Australians found living and working conditions at Khormakser, the permanent airfield, quite good but arrangements at the advanced airfields at Socotra, Riyan, Salala and Scuscuiban were very primitive. On the island of Socotra refuelling was done, mainly by the crews themselves, from 4-gallon tins. For the most part the work of all these squadrons was dull and monotonous, opportunities for distinction and promotion were almost non-existent, but there was general satisfaction in the safe passage of convoy after convoy to swell the resources of Middle East Command. On 7th November 1942 Japan withdrew her naval forces beyond longitude 70 degrees east,² and the danger from submarines decreased. The detachment from No. 459, however, remained at Aden until the middle of December. The aircraft then returned to the parent unit, but it was some months before the Australian ground staff rejoined.

Also on 10th September, six Australian Hudsons and crews were sent to St Jean in Palestine. This party was to combat U-boat activity near Cyprus and Haifa, which had reached a peak during August. This change from anti-shipping duties was not welcomed and one officer wrote: "We were sorry to leave the active fighting and felt a little ashamed for a time of a comparatively peaceful role when our mates were still in the thick of it." The Hudsons, however, were merely reverting to their correct role and flew regularly throughout September and October, mainly on night patrols because they were equipped with radar, and thus could operate effectively during the period of greatest danger to shipping. In addition to convoy-escort duties, new methods and patrol patterns were worked out for cooperation between air and naval craft. Enemy submarine



² This was the original demarcation line in the Tripartite Treaty. Germany, however, had requested strong Japanese intervention in the western Indian Ocean and had made her own plans accordingly.

activity fell away steadily³ and these flights were as uneventful as those from Aden, but they served their purpose. Twelve Australians serving with No. 230 Squadron R.A.F. and eighteen with No. 203 also helped to police the Levant convoy routes.

Adequate supplies for the Eighth Army were thus never in doubt and Air Marshal Tedder concentrated on the complementary task of denying reinforcements and equipment to the enemy. In one fashion or another nearly all the air resources at his command joined in throttling enemy supply lines and communications, with the result that only a small fraction of consignments from Europe actually reached Field Marshal Rommel's forward positions. As most heavy equipment necessarily came in ships, the first fury of attack was made at sea by aircraft and submarines. Reconnaissance from Malta was still the key to all enemy movements and No. 69 Squadron R.A.F. worked unceasingly to discover targets for both the air force and navy. Flying Officer Mackay,⁴ an Australian who had shown outstanding skill, patience and daring on these flights, was promoted to command the Baltimore flight of this squadron during October. On the basis of these reports, British submarines could intercept and an air attack could be launched either from Malta or Egypt by mixed forces of bombers and torpedo-carriers. Thus, at 12.30 p.m. on 6th September, Flying Officer Milson⁵ and Pilot Officer Marshall flew from Malta in a force of twelve Beauforts of No. 39 Squadron R.A.F. sent to attack a south-bound convoy off Cape San Maria di Leuca. Four medium-sized ships were duly sighted, escorted by eleven destroyers and covered by Ju-88's and Italian fighters. Despite the opposition the Beauforts attacked and secured at least one torpedo hit on a merchant ship which was later beached. Two Beauforts and two escorting Beaufighters were shot down and four more of each type badly damaged, but Milson's gunner destroyed a Macchi 200 before the force withdrew. On 22nd September Marshall also flew on a daylight strike which damaged an enemy tanker near the island of Antipaxoi (south of Corfu). No. 39 Squadron was then withdrawn to Egypt to reorganise, and it did not operate again until 26th October.

By contrast with the Beauforts which made only three daylight attacks before the battle of El Alamein began, the Wellington squadrons of No. 201 Group were much more frequently employed. Twenty-three Australian aircrew served with No. 38 Squadron and eight with No. 221, which were primarily responsible for night patrols. Australians took part in twelve attacks during which one ship was sunk, three severely damaged

³ By Sep only 13 U-boats were available for the entire Mediterranean. Italian submarines were mostly idle. Doenitz opposed reinforcement at this time. "The belief that the U-boat war in the Atlantic could of itself have a decisive effect hindered the formation of a sufficiently strong force in the Mediterranean Command. It would have been of paramount importance in this period of preparation for the final decision." (Vice-Adm E. Weichold, "The War in the Mediterranean".)

⁴ W Cdr R. C. Mackay, DFC, 402527. 223, 69 and 21 Sqs RAF; comd 458 Sqn 1944-45. Grazier; of Bourke, NSW; b. Dubbo, NSW, 25 Jul 1915. Killed in aircraft accident 19 Nov 1948.

⁵ W Cdr C. G. Milson, DSO, DFC, 402379. 39 and 144 Sqs RAF; comd 455 Sqn 1944-45, 15 Aircrew Holding Unit RAF 1945. Jackeroo; of Winton, Qld; b. Longreach, Qld, 16 Jun 1919.

and two others damaged. The first successful attack came during the early hours of 8th September when Flight Sergeant Brigg and Warrant Officer Flanagan (torpedoes) and Pilot Officers Leahey⁶ and Wiggins⁷ (bombs) were homed with fifteen other Wellingtons to a ship north of Derna. Italian destroyers created a very effective smoke screen and eleven of the Wellingtons failed to attack. Brigg flew on blindly through the screen and aimed his two torpedoes at the indistinct shape of the merchant vessel. Wiggins dropped his bombs in a determined low-level approach and achieved a direct hit, the vessel being assessed as severely damaged. This strike was followed by a dawn search by five Hudsons of No. 459 but only one found and bombed the vessel which was last seen listing to port with a destroyer standing by. Even more successful was a Wellington strike late on 17th September when Flanagan and Wiggins (torpedoes) and Flight Sergeant Sismey⁸ (bombs) shared in damaging all three ships in a convoy north-west of Tobruk. Enemy defences around the convoys had been greatly strengthened and Wiggins returned from this sortie with his aircraft badly damaged. A few nights later Flanagan was forced down into the sea, and after floating for five days in his dinghy, he was picked up by a German flying-boat. During the next month five more attacks were made and on 1st-2nd October Leahey secured one of two torpedo hits which damaged an enemy tanker near Derna. These examples of attacks in which Australian captains took part naturally give only a brief glimpse of the whole picture. During September when relatively few Axis ships attempted the crossing to Africa, 33,938 tons of shipping were sunk by all agencies, and in October the figure rose to 49,611. Of this total of 83,549 tons, air action accounted for 48,382 and in addition a further 49,500 tons were rated as "severely damaged" and 54,300 as "damaged".⁹

Not all these successes fell to torpedo aircraft. Italian ships which made safe passage to Benghazi or Tobruk still had to face an ever-increasing weight of bombs. American Liberators struck repeatedly from Palestine at Benghazi and sank 12,000 tons and 10,000 tons of shipping there during September and October respectively. A nightly average of thirty Wellington and Halifax sorties against Tobruk did much to lessen the value of that port.¹ This hammering was of prime importance because an ambitious series of raids on 13th-14th September against these ports by troops striking simultaneously from seaward and from the heart of the desert, unluckily failed. The number of Australians joining in this ceaseless pressure by Wellingtons against enemy ports was not quite so high as

⁶ F-Lt J. J. Leahey, AFC, 402511; 38 Sqn RAF. Manager; of Orange, NSW; b. Orange, 28 Apr 1917.

⁷ W Cdr A. L. Wiggins, DSO, DFC, 407451. 38 Sqn RAF, 455 Sqn; W Cdr (Flying) RAF Stns Langham and Dallachy 1944-45; comd 11 PDRC RAF 1945-46. Salesman; of Woodville, SA; b. Middleton, SA, 24 Sep 1916.

⁸ F-Lt F. L. Sismey, 402764. 38 Sqn RAF, 12 Sqn. Accountant; of Concord, NSW; b. June, NSW, 3 Aug 1918. Killed in action 20 May 1945.

⁹ Italian records show only the ships which were sunk, so that no confirmation is possible of the estimates of damage. The accuracy of British estimates of ships sunk suggests that other figures are close to the mark.

¹ Between 6 Sep and 24 Oct, 183 Halifax and 903 Wellington sorties were made against Tobruk. The USAAF made over 120 effective sorties to Benghazi.

in previous months. Many had become casualties or had completed their operational tour, and fewer Australians were among replacement crews.² Nor were the ground crews of No. 458 still serviceing the American Liberators, for Wing Commander Johnston's plea that the squadron be re-formed as a fighting unit had at last prevailed, and it was busy re-forming at Shallufa, not for bombing but for torpedo strike duties with No. 201 Group. In September the ground crews of No. 454 were similarly withdrawn from R.A.F. Liberator units, but as all these men were British, this absence represented a purely nominal decline in Australian effort. No. 454, originally intended as a bomber-transport squadron, was now to train on Blenheim aircraft under Wing Commander I. L. Campbell, formerly of No. 459. They were to form part of "Force D" equipped with light bombers and stationed in Iraq to combat any German threat to Transcaucasia. Nor was the formation of No. 462 Squadron R.A.A.F. at Fayid on 6th September any real addition to Australian strength. This was merely a fusion of crews and aircraft of Nos. 10 and 76 Squadrons of Bomber Command which had been temporarily loaned to Middle East Command. All its ground complement and all its aircrew except one were British and it was less Australian in character than any other squadron in No. 205 Group.

The operations of these bomber units gave little opportunity for outstanding achievement, but the regularity of the raids, and the high standard of serviceability of these squadrons was in significant contrast to enemy effort at this time. The most prominent Australian was Wing Commander Saville, formerly of No. 458, but who now commanded No. 104 Squadron R.A.F. With No. 148 at this time was a particularly determined and skilful party of Australians. Flying Officers Moore,³ Clark,⁴ Mackellar⁵ and Wharton⁶ and Sergeant Stewart⁷ were all pilots who attacked Tobruk many times, and repeatedly caused fires in the dock area. An observer, Flying Officer Campbell,⁸ and two gunners, Flight Sergeants Gray-Buchanan⁹ and Fuller¹ of the same squadron also achieved prominence because of their zest and pugnacity. Similar groups were active with Nos. 37, 70, 40, and 104 Squadrons on each of which, despite losses, Australians set for themselves a very high standard.

² Because of cessation of drafts from Australia early in 1942, Australians were not at this time leaving Bomber OTUs.

³ Sqn Ldr K. Moore, DFC, 400595. 458 Sqn, 1446 Flight RAF, 148 Sqn RAF, 460 Sqn. Meter tester; of East St. Kilda, Vic; b. Caulfield, Vic, 4 Dec 1916. Killed in action 4 Apr 1943.

⁴ F-Lt J. E. L. Clark, 402225. 405 Sqn RCAF, 148 Sqn RAF. Student; of Cremorne, NSW, and Rabaul, New Britain; b. Hazelbrook, NSW, 25 Feb 1920.

⁵ F-Lt J. D. Mackellar, DFC, 402664. 458 Sqn, 148 Sqn RAF, 380 B Gp USAAF, 23 Sqn. Clerk; of Double Bay, NSW; b. Leeton, NSW, 7 Nov 1919.

⁶ W Cdr A. Wharton, DSO, DFC, 404556. 458 Sqn, 148 Sqn RAF; comd 466 Sqn 1944-45. Bank clerk; of Lismore, NSW; b. Gosford, NSW, 4 Apr 1919.

⁷ F-O N. G. Stewart, DFM, 400497. 458 Sqn, 148 Sqn RAF. Farmer; of Yarragon, Vic; b. Benalla, Vic, 17 Oct 1918. Killed in aircraft accident 10 Sep 1943.

⁸ F-Lt K. S. Campbell, DFC, 404371. 142 Sqn RAF, 458 Sqn, 148 Sqn RAF, 14, 6 and 8 Sqn. Bank clerk; of Ipswich, Qld; b. Ipswich, 19 Mar 1920.

⁹ F-Lt S. B. Gray-Buchanan, DFM, 404376. 12 Sqn RAF, 458 Sqn, 148 Sqn RAF, 467 Sqn, 61 Sqn RAF. Wool appraiser; of Brisbane; b. Rockhampton, Qld, 26 Jul 1916.

¹ F-Lt R. O. Fuller, DFC, DFM, 407149. 456 and 458 Sqn, 148 Sqn RAF, 463 and 467 Sqn. Farmer; of Booleroo Centre, SA; b. Booleroo Centre, 1 Dec 1915.

Unshakable faith in themselves and the purpose of their fighting gave a mental stimulus which led them at times to attempt the almost impossible. Thus on 8th October when a Wellington of No. 40 caught fire while circling Tobruk and had to be abandoned near Capuzzo, the four survivors from the crew were not downcast. They were then more than 300 miles from the British front positions even in a straight line along which lay the whole enemy army. To the south lay desert where evasion was possible but chances of survival slim. The only supplies which they could muster between them were three filled water bottles, six tins of bully beef, a few biscuits, milk tablets, chocolate, toffee and chewing gum, benzedrine, matches and four small compasses.

Only one of these men, Sergeant Wood,² was an Australian, but his mental and physical toughness were of great importance in this adventure. At dawn the men began to walk eastwards until 4 p.m., stopping only at a cairn filled with rainwater, from which they drank and filled an abandoned two-gallon tin which they found nearby. On the fourth day they crossed the frontier into Egypt but two of the party were already weak and footsore and suffering badly from the heat. On the sixth day while they were still within easy reach of the railway, one man decided he could go no farther and headed northwards towards the coast. Two days later, when south of Sidi Barrani, the second man was also forced to abandon the attempt to escape. Wood and his pilot now had left only four tins of meat, three of chocolate, a few biscuits and milk tablets and two gallons of water. This they arranged to last for twelve days, and confident of their own endurance they headed south-eastward into the desert. Heat and sandstorms gave them little rest but they pushed on each night, their shoes falling apart and finally held together with wire. By the eighteenth day "sleep was almost impossible, partly because of exhaustion and mostly because of the continual gnawing in our stomachs and the thoughts of food and cool drinks that we could not keep out of our minds". Despite the frugal and determined rationing, their food and nearly all their water had been consumed by the twentieth day, but they now fell in with several parties of Bedouin camel drivers from whom they secured a few dates and rice. They had no knowledge of the fierce battle then raging at El Alamein, but on 2nd November (the twenty-fourth day) when near El Maghra, they heard a motor lorry in the distance. Heading northwards they met elements of a British armoured unit which arranged for them to be sent back to their squadron.

British successes against Axis convoys and supply ports during September led to agitation in Italy for a renewed assault on Malta.³ German air resources in Sicily had been much reduced in favour of Russian, Egyptian and convoy operations, but daylight raids began on the 11th and lasted

² F.O. J. K. Wood, 403540; 40 Sqn RAF. Clerk; of Hornsby, NSW; b. Taree, NSW, 15 Jan 1921.

³ *Ciano's Diary 1939-43*: entries 2, 3, 4 and 29 Sep 1942. Weichold: "The Third Phase", paragraph 39.

until 19th October. The Spitfire defence of Malta was so strong that on 18th October Kesselring "forbade further day attacks on Malta by Ju-88 formations, even with fighter cover, because of the heavy bomber losses".⁴ Fourteen Australians flew with the four Spitfire squadrons during this short struggle and Flight Lieutenant Parkinson (No. 229 Squadron) was credited with shooting down three enemy aircraft, and Pilot Officer Reid (No. 185 Squadron), Pilot Officer Sanderson⁵ (No. 249 Squadron) and Sergeant Hiskens⁶ (No. 249 Squadron) each claimed two destroyed.⁷ On one occasion Reid led his section to intercept a force of seventy enemy aircraft with such dash that the bombers hurriedly jettisoned their bombs and fled. With this final and weakest of the many attempts to neutralise the air forces of Malta, virtual control of sea routes in the central Mediterranean lay with the R.A.F. and the Eighth Army could launch its offensive secure in the knowledge that the enemy's already inadequate supply position would not improve.

Even vehicles and equipment which were safely unloaded at Benghazi and Tobruk suffered further losses before they could be used in battle. The long road journey wore out many trucks, and many more were attacked from the air. The chief successes in strafing road and rail transport well behind the enemy lines were gained by the Beaufighters of No. 272 Squadron of No. 201 Group. Flying Officers Rankin,⁸ Stephenson⁹ and Coate¹ and Sergeants Swift² and Pattearson³ made several strikes of this nature, chiefly against traffic on the road between Buq Buq and Sidi Barrani. In a typical flight on 1st October, Swift attacked six lorries, setting two on fire and forcing the others off the road. Pattearson attacked about a dozen trucks and then fired his twelve guns at a small camp, consisting of a tent, a lorry and some drums. There was a terrific explosion

⁴ "German Air Force Activities in the Mediterranean 1941-43." AHB Translation No. VII/II.

⁵ F-Lt J. G. Sanderson, 407835. 602 and 249 Sqns RAF, 452 Sqn. Clerk; of Mitcham, SA; b. Bordertown, SA, 4 May 1921.

⁶ W-O E. T. Hiskens, 404677. 65, 129 and 249 Sqns RAF. Bank clerk; of Rockhampton, Qld; b. Rockhampton, 11 Sep 1921. Killed in action 15 Oct 1942.

⁷ Parkinson's clipped contemporary notes give a vivid impression from the pilot's viewpoint: "Third raid about 11 a.m. The wing intercepted 8 Ju-88's half way to Sicily. We made a head-on attack. Long before we were in range the bombers started to panic. I closed to within a few yards of one firing head-on, could see shell-bursts all over him. Put front-gunner out of action. Both engines were smoking. Went into a spiral dive. In the meantime I was attacked by three 109's. One overshot me so I turned into him and gave him a burst which hit the engine and pilot. The Me-109 went down in a series of wide barrel rolls, burning and smoking. Crashed into sea. Came back home

"Ta Kali squadrons made a complete rout of the bombers. I doubt if one Ju-88 arrived back at its base. The bombers are coming over all day now. Malta pilots knocking them down like ninepins . . . in this lot of the new blitz."

⁸ Sqn Ldr R. Rankin, DFC, 402394. 236, 227 and 272 Sqns RAF, 30 Sqn. School teacher; of Major's Creek, via Braidwood, NSW; b. Braidwood, 3 Nov 1914. Australian International Rugby Union Footballer, 4 years.

⁹ F-Lt A. P. Stephenson, 400136. 254, 143 and 272 Sqns RAF. Draftsman; of Melbourne; b. Melbourne, 17 Apr 1921.

¹ F-Lt E. E. Coate, DFC, 400695. 252, 227 and 272 Sqns RAF. Garage proprietor; of Bairnsdale, Vic; b. Lakes Entrance, Vic, 13 Aug 1908.

² F-Lt R. A. Swift, DFC, 402416. 236, 227, 272, 27 and 217 Sqns RAF, 1 and 94 Sqns. Newspaper advertising rep; of Killara, NSW; b. N Sydney, 30 Dec 1916.

³ F-Lt G. G. Pattearson, 402392. 227 and 272 Sqns RAF. Clerk; of Kempsey and N Sydney, NSW; b. Paddington, NSW, 2 Jan 1917.

which dented the nose of the Beaufighter and covered it with debris. A large fire was seen but the camp had disintegrated; small scraps of paper with Italian print were later found on the aircraft. Swift and Pattearson also inflicted casualties on military gangs repairing the road west of Sidi Barrani. During this period the Beaufighters also escorted Bisley bombers in attacks against "F-boats" and trains, flew patrols for the naval force engaged in the abortive landing attempts at Tobruk and Benghazi, and had several air combats.

With supply factors increasingly favourable, Western Desert Command was actively preparing for battle. There was no doubt that overwhelming numerical superiority lay with the Allies because, although the enemy had ample aircraft, he could maintain fewer than 300 in Egypt on his scanty fuel supplies. The German bomber force in Crete was also relegated to a transport role at this time, thus removing another potential threat to Allied preparations. Tedder himself had substantial American and South African reinforcements for use in the battle, and this called for reorganisation, lest existing wing and group formations grew too unwieldy. A new light-bomber wing (No. 232) was created to control American Air Force Mitchell bombers and Nos. 55 and 223 Squadrons R.A.F. (Baltimores) while No. 3 South African Wing operated Nos. 12 and 24 (Bostons) and No. 21 (Baltimores). The fighter force was similarly divided into two groups (Nos. 211 and 212), the former controlling Spitfires, Kittyhawks, American Warhawks and Hurricane IID squadrons, and the latter all the normal Hurricane squadrons.⁴ To achieve even greater mobility each fighter squadron was reduced to two mobile flights and a serviceing flight—a total of approximately 220 men. Ground defence and signals personnel were withdrawn, the former to join flights of the R.A.F. Regiment, the latter to be pooled for greater efficiency. Each squadron was also required to provide thirty-five men for service in the mobile aircraft depot by which it was to be supported.

For No. 450 Squadron R.A.A.F. there was no difficulty in complying with these new arrangements, but the policy of the Air Board prohibited members of No. 3 Squadron R.A.A.F. from being posted to R.A.F. units. Wing Commander Duncan proposed to Overseas Headquarters that men detached from No. 3 be replaced by Empire Scheme men, thus allowing the Air Board to repatriate or use in any way it desired the permanent airmen surplus to No. 3. This airmail letter sent on 8th September, brought no reply until Christmas Day, by which time No. 3 had long since conformed to the new establishment. For six months the airmen released from No. 3 worked in base units near Cairo, but by this time the old distinction between the two classes of Australian airmen serving overseas had been abolished and they were available for posting to *Article XV* squadrons.

In addition to reorganisation, much time was taken up with training. Static, well-defended and well-dispersed targets gave few chances to the

⁴ The Hurricane IID "tank-buster" aircraft was armed with 2 40-mm cannon. It was nicknamed the "tin-opener".

light bombers most of which were withdrawn to base airfields. Some thirty Australians flew occasional sorties over the enemy lines and rear areas, but none achieved special distinction. Fighter squadrons also undertook a considerable training program. No. 3 Squadron remained at Amiriya throughout this period, but No. 450 Squadron in common with most of the other fighter squadrons enjoyed a fortnight's rest.⁵ This policy resulted in a phenomenal state of readiness when specific air preparations for the battle began during the third week in October, with an over-all serviceability rate of 74 per cent, rising to 86 per cent for light bombers and 90 per cent for fighters. The principle of inter-Service cooperation had been carried into effect with the Eighth Army commander, General Montgomery, working closely with the air officer commanding Western Desert, Air Vice-Marshal Coningham, through a combined headquarters, and there was great confidence in all quarters that the already superior R.A.F. would be able to give swift and effective air support over any part of the battlefield.

The squadrons remaining on duty at Amiriya were by no means idle. German fighters were active, though usually in small numbers except when they attempted to escort Stukas against our front-line positions. During September the R.A.A.F. squadrons went up almost every day to repel intruders, and although most of these interception patrols were abortive, one period 12th-16th September produced a combat each day. In 111 sorties during these few days the Australians claimed 4 enemy aircraft destroyed, 4 more probably destroyed and 5 damaged. Most of these combats were brief and straightforward, but one during the late afternoon of 15th September was both involved and costly. Ten Kittyhawks of No. 450 flying as top cover to eight of No. 3 were directed to a point ten miles south-west of El Alamein, when they sighted eight Me-109's above them and a further seven "up-sun" well positioned for an attack. Within a few minutes a general dog-fight had developed, individual pairs describing figure-eight turns into the sun. More enemy fighters joined in but after fifteen minutes of strenuous fighting, patrols of Nos. 112 and 250 Squadrons appeared from the south. This time the advantage of height lay with the Kittyhawk reinforcements and the Messerschmitts were driven off. As they turned for home the Australians could see four aircraft burning on the ground, three parachutes in the air, a Kittyhawk and an Me-109 spinning down out of control after colliding with each other, and an enemy aircraft trailing heavy smoke as it headed west. On this occasion the Australians claimed only one victim but themselves lost three pilots with a fourth wounded.

Towards the end of September there was a slight renewal of fighter-bomber activity when on the 24th and 25th Nos. 3 and 450 bombed enemy positions near Sidi Abd el Rahman and Ghazal and again on the 30th when they escorted Baltimores to attack Jebel Kalakh, but the emphasis again shifted to interception duties during the first week in October.

⁵ Officially it was attached to AHQ Egypt for defence of the Delta.

Although apparently colourless, these patrols were by no means ineffective, as on 1st October when the *Panzer Army* war diary records: "The air attack planned for 5 p.m. did not materialise as forty British fighters forced the dive-bomber formation to turn back and dump their bombs over the German front line." The R.A.F. was then favoured by good fortune, for heavy rain began on 6th October and waterlogged the Daba airfields without affecting Amiriya. Training programs were halted, squadrons (including No. 450) recalled from leave, and throughout 9th October light bombers and fighters attacked the grounded enemy aircraft, dumps and gun positions at the Daba airfields. The Australians flew fifty sorties, half to escort Baltimores and half to machine-gun Landing Ground 21 after Bostons had bombed. They were attacked only once when in a clash with five Me-109's one Kittyhawk was lost for the destruction of one enemy fighter. Wellingtons that same night made heavy attacks on Fuka, the best serviceable airfield remaining to the enemy, which recovered only slowly from the material damage and demoralising effect of these raids. Meanwhile from 12th October onwards, Nos. 3 and 450 reverted to fighter-bomber tasks interspersed with occasional interception patrols; targets were scattered from Jebel Kalakh to Sidi Abd el Rahman but the attacks were on a very light scale. In all during the preparation period between 6th September and 19th October the two squadrons flew only 668 sorties (330 on interception, 107 on sweeps, 104 on bomber escort and 127 on fighter-bombing). Squadron Leader Williams, who succeeded Squadron Leader Ferguson⁶ in command of No. 450 on 18th October, and Squadron Leader Gibbs were both confident that although there were many junior pilots on each squadron, they were all at a peak of efficiency. Similarly high morale existed among the forty odd fighter pilots scattered among squadrons employed in the same tasks. Two of them, Flight Lieutenants Fokett (No. 80) and Cundy⁷ (No. 260) were now flight commanders.

There was some speculation both at the time and later as to the reason why Field Marshal Rommel remained doggedly in siege of the Alamein line while the situation became increasingly adverse for him. That he was fully aware of the mounting threat which confronted him is clear from his appreciation in mid-July when he determined to launch an offensive himself before the threat eventuated. The lessons of that attempt for which he could neither gather sufficient initial strength nor sustain the forces actually committed were equally plain. But Rommel was in the position of the greedy monkey with its paw around fruit in a narrow-necked jar—he was unwilling to relinquish the prize so nearly within his possession whatever the attendant dangers. Rommel was never unduly fearful of numerical inferiority: previously, though in the heat of battle his tactics had sometimes been bad, those of his opponents had been worse; certainly

⁶ W Cdr A. D. Ferguson, DFC, 394. Comd 451 and 450 Sqns 1942, 81 Wing 1945. Regular air force offr; of Cooma, NSW; b. Cooma, 15 Mar 1919.

⁷ F-Lt W. R. Cundy, DFC, DFM, 402732. 135 and 260 Sqns RAF, 452 Sqn. Clerk; of Scone, NSW; b. Maitland, NSW, 22 Feb 1922.

from May-July 1942 he had driven, with ever-weakening German forces, a much larger but disorganised British force backwards from Gazala to Alamein. He still hoped that, if he could only ease his critical supply difficulties, German pugnacity and his own sense of timing would yet throw the British off balance and give him final victory.⁸

Rommel, too, was acutely aware that his present predicament partly arose from his success in influencing Hitler to abandon the plan to capture Malta in favour of an all-out advance against the Delta; Hitler was in no mood to countenance a voluntary withdrawal at this stage. In any case the alternative to staying in the narrow Alamein defile was unwelcome because the June objective of maintaining a line on the Egyptian frontier was now impracticable, as British numerical superiority, once there was room to manoeuvre, would threaten perpetual outflanking attacks on such positions. And so Rommel chose to remain, hoping for a last gamble which would retrieve his whole fortunes, and, with perhaps only human weakness, tending to blame everyone but himself for his inability to advance immediately. Rommel may or may not have fulminated, as is alleged, in his broad Bavarian accent, "Kesselring won't give me any gas", but the general weakness of the Axis situation is fully revealed in the war diary of the *Panzer Army Africa*.

September began badly for the Axis with the patent failure of Rommel's offensive, and on 7th September is recorded "two ships carrying fuel and supplies for the Panzer Army were sunk by enemy aircraft". However, the same day a ship arrived at Tobruk with 800 tons of fuel and the following day *Ankara*, *Ravello* and *Sestriera* docked at Tobruk and Benghazi with a combined total of 2,500 tons of fuel, 1,100 tons of ammunition and other supplies. Hereafter the progress of practically each supply ship with German equipment is reported in the war diary—a sure barometer of the logistic weather. On the same day Field Marshal Kesselring signalled that Mussolini had pledged himself "to speed up supplies for North Africa" and that a renewed assault was to be made against Malta. Rommel on 11th September reported to Generals Jodl (at *O.K.W.*) and Halder (at *O.K.H.*)⁹ that "the German troops again demonstrated their superiority in recent fighting" but that "reinforcement of the *Luftwaffe*, which is at present confronted by a greatly superior air force is . . . absolutely essential. This reinforcement must consist primarily of fighters, but bombers must also be included so that large-scale reprisal attacks may be carried out". He further claimed that "the Italian troops have failed once again The Italian Command is not equal to the require-

⁸ The Germans had little respect for British strategy or higher control of formations in battle. Even after the battle of Alamein had been fought *15 Panzer Div* report comments: "The British High Command fell back on their accustomed policy of extreme caution—systematic build-up of the attack until a favourable defensive position was reached—deployment to meet expected enemy counter-attacks—resumption of the attack, always in the same sequence. No effort was made to exploit developments in the situation by the use of mobile forces"

⁹ *OKW*—*Oberkommando der Wehrmacht* was the supreme command of the combined armed forces, in reality Hitler's own general staff. Gen Jodl was the chief of operations staff. *OKH*—*Oberkommando des Heeres* was the army high command. At this time Gen Halder was the chief of general staff, a post which can be compared with that of the British Chief of the Imperial General Staff.

ments of mobile desert warfare Experience has shown that Italian formations must have German stiffening units even for defensive operations". He reiterated demands for a minimum of 30,000 tons of supplies during September, rising to 35,000 tons in October, plus reinforcements amounting to 5,000 men, 2,000 vehicles and 70 field guns. To General von Rintelen¹ in Rome on the same day Rommel somewhat acidly pointed out that he had already been compelled to reduce the bread ration by half, that there were no supplementary rations and the rate of sickness, largely due to undernourishment, was extremely high.

On 13th September the Quartermaster-General "reported on the somewhat improved supply situation", on the 16th Kesselring promised to operate night fighters from Crete in defence of convoys, and during this period "500 Italian and 270 German troops were being flown to Africa daily", but on the 19th the *Cardonia*, carrying 320 tons of fuel, was sunk by torpedo bombers and the war diary records: "Only 1 ship and 2 submarines carrying supplies arrived in Africa during the period from 8 to 18 September. 7,106 tons of supplies, i.e. 24 per cent of Panzer Army's monthly requirements arrived during the period 1st to 18th September."

On 17th September General von Thoma took over command of the *Africa Corps* from General Nehring, who had been injured, and on the 22nd General Stumme took temporary command of the *Panzer Army Africa* from Rommel. Stumme was perhaps in a weaker position even than Rommel to counsel abandonment of the Alamein positions in view of the fantastic withdrawal which such action would entail, and accordingly he maintained the previous policy while the situation grew progressively worse. In heavy air attacks against Benghazi on 22nd September the *Apuania* was destroyed and *Ravello*, *Pertusola*, *Tripolino* and a torpedo boat were damaged. When the tanker *Rondine* reached Tobruk safely on the 24th there were still only ten days supply of petrol for purely defensive operations. The *Menes* arrived at Tobruk on the 27th with vehicles and ammunition for the *164th Infantry Division* and the *Ramcke Brigade* but on that day *Barbaro* was lost with a similar cargo and *Unione* was damaged and had to be towed into Benghazi. By 1st October there were 21 days normal consumption of fuel on hand but the food position was causing grave anxiety, and three days later special escort was requested for *Anna Maria* which was to carry foodstuffs from Benghazi to Tobruk. Several food ships were at this time held up in Tripoli for lack of escort vessels and Admiral Weichold was asked for the temporary loan of minesweepers and E-boats for such duties. Between 20th September and 1st October 12 officers and 1,270 other ranks were flown over to Egypt, but this number hardly compensated for the increased number of sick cases.

On 4th October Italian naval authorities closed Tobruk harbour to all in-going and out-going traffic, and it remained closed until the 7th because of the danger from British mines. Two ships arrived at Benghazi at this time but "the fuel situation was very strained, ammunition stocks were

¹ Gen Enno von Rintelen was German mil attache in Rome 1939-42 and was in charge of supplies for N Africa.

completely inadequate and the food situation had reached an unprecedented low level" just when obvious signs of an imminent British offensive became apparent. The Italian *Commando Supremo*, however, promised that thirty-three supply ships would be dispatched to North Africa during October, and Marshal Barbasetti offered some fats and flour from Italian stocks. A frantic combing out of ships from other areas began² but on 11th October *Una* was sunk by a submarine and *Tergeste*, carrying a cargo of 240 tons of ammunition, 1,000 tons of food and 240 vehicles, was damaged by aircraft attack while en route for Africa and had to make for a Greek port.

By 19th October when the war diary notes the ominous signs of "lively harassing artillery fire" and that British "fighter-bombers and bombers in some strength made attacks on advanced air bases" heralding an offensive, fuel stocks had fallen to 11 days' restricted supply. The tanker *Panuco* had been lost in the interim and the total fuel received during the first eighteen days of the month totalled 679 cubic metres compared with consumption of 4,664 during the same period. However, the shortage of anti-tank ammunition had been relieved by the use of submarines and aircraft. Further wrangling followed concerning the relative allocation of shipping space between Italian and German needs, but because existing fuel stocks would last only until 29th October when the output of a tanker due earlier at Tobruk would become available, Kesselring was asked on 22nd October to fly 1,000 tons of fuel from Greece at the expense of temporarily holding up the transportation of personnel. Kesselring promised 100 tons to arrive at Tobruk on the 23rd and further similar supplies during the following days, but this amount, though welcome, represented only 30 per cent of the fuel required by the German *Panzer Army* formations solely for transporting current supplies.

Such was the tenuous nature of the Axis supply situation on the eve of the British offensive. Stumme summed up on the 22nd: "We are living from hand to mouth; we fill one gap only to see another one open. We cannot build up the basic supply which would enable us to overcome critical situations through our own resources and which allows operational freedom of movement, which is an absolutely vital necessity for the Army."

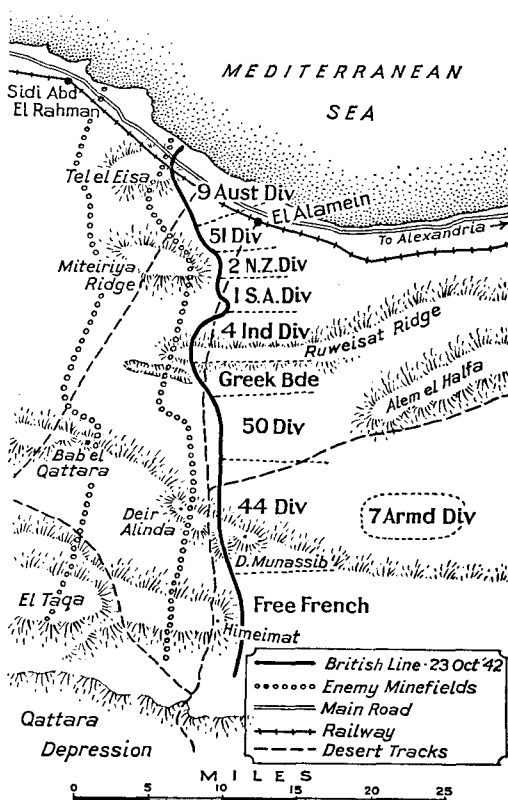
Meanwhile the Eighth Army completed its preparations by the end of the third week in October. German and Italian infantry, with the *15th* and *21st Panzer Divisions* in reserve, held strong defensive positions which could be breached only by frontal assault. General Montgomery planned to attack with infantry in the north, breach the minefields and then send his armoured forces through to engage and destroy enemy tanks in open country. This plan involved extensive changes of troop dispositions in the battle area and the quick move of tanks to the front with inevitable

² The German Supreme Command (OKW) also promised to re-examine the whole question after the visit to Italy of Karl Kaufmann, Reichskommissar for Shipping—but the urgency of the problem does not seem to have been appreciated.

road congestion. During this critical phase, if tactical surprise was to be obtained, the R.A.F. had to prevent enemy air reconnaissance. Thus on 20th October Air Vice-Marshal Coningham announced: "The Allied Air Forces have to-day started the battle. The whole of our air and ground personnel is involved. The victory you are going to win will be decisive in the land battle." In practice the task was easier than had been anticipated. The fighter airfields at Daba and those at Fuka used by Ju-87's had not fully recovered from the opportunist raids on 9th October. They were now remorselessly pounded night and day by Wellingtons, light bombers and fighter-bombers. Offensive enemy action, even reconnaissance flights, was negligible and British ground troops were able to take up their desired positions without interference.

During the four days of interdiction the Australians accompanied five formations of light bombers to Fuka, and on the morning of the 23rd provided twenty-three aircraft for a strike by the whole of No. 239 Wing against one of the airfields at Daba. Other tasks included fighter-bomber raids against a German mobile workshop south-west of Deir el Qattara and against a suspected divisional headquarters near El Taqa. In all, 168 sorties were recorded, on 52 of which 500-lb bombs were carried. Enemy

opposition was persistent but too slight to prevent these heavy raids, although the Australians lost seven aircraft to ground gun fire and fighters, themselves shooting down only three enemy planes. The Germans came nearest to success on the morning of the 22nd, when one bomber and three Kittyhawks were shot down in a single raid, but effort then slackened. The fighter-bomber mass attack against Daba at 8 a.m. on the 23rd met only negligible interference and No. 3, acting as top cover, reported numerous hits all over the dispersal area. This was the crucial day preceding the land offensive and all Allied fighters were out patrolling the Daba area to intercept enemy aircraft, but No. 3 saw no action and No. 450



only once when they shot down two of four Me-109's and routed the others. The main purpose of the battle, however, was fully achieved and under cover of the air supremacy achieved by the fighters, the 1st and 10th Armoured Divisions moved up from the Delta to waiting areas near El Alamein, and the four infantry divisions (9th Australian, 51st Highland, 2nd New Zealand and 1st South African) chosen for the initial infantry attack assembled without interference on the narrow front chosen for penetration.³

The land battle began at 9.40 p.m. (British time) on 23rd October with by far the most powerful artillery barrage the Western Desert fighting had seen. Twenty minutes later the infantry advanced between Tel el Eisa and Miteiriya. Subsidiary attacks were launched simultaneously in the central and southern sectors, while above the battle Wellingtons bombed gun positions and troop concentrations, and night-flying Hurricanes harassed traffic in the immediate rear of the enemy lines. By morning three gaps had been made in the enemy minefield, but it was not yet safe to send the armoured divisions forward against strong anti-tank gun emplacements and during the 24th the infantry consolidated their early gains. No. 450 returned from an early-morning reconnaissance to report that the *21st Panzer Division* was showing no signs of preparation to move north, and then both R.A.A.F. squadrons devoted themselves to escorting light bombers, which flew 200 sorties during the day. No. 239 Wing was required to cooperate with the newly-formed No. 232 Light-Bomber Wing in three attacks and twice flew alone to bomb enemy positions in the south. The standard bombing force of eighteen Baltimores or Mitchells was led by six Kittyhawks with bombs and six without, while twelve more Kittyhawks provided top cover, flying above and slightly behind the main force. After assembling over advanced landing grounds, these formations set course over the sea to avoid anti-aircraft fire, recrossing the coast when due north of their target. The angle of approach and height of bombing were varied and at times the Kittyhawks dropped their bombs after the main force, although this did not always please the fighter pilots who then found themselves bombing a target obscured by dust. The Australians flew ninety-three offensive sorties on 24th October against negligible air opposition, and No. 3 was also called on late in the afternoon to provide a defensive patrol for the massed armour which was still waiting in its assembly area, and although presenting an ideal target to the enemy, remained unmolested all day.

The British tanks moved forward through the minefields during the night of 24th-25th October, but enemy counter-attacks prevented a swift advance. A stubborn ground battle continued for four days, the opposing air forces attempting to influence the outcome. R.A.F. light bombers struck six times during the morning of 25th October against enemy formations endeavouring to concentrate for the counter-attack, but at 1.30 p.m. the

* As described above the Germans knew that an offensive was more than probable and the extent of air attack obviously meant that it would soon come, but the war diary records only on 23 Oct: "Air reconnaissance observed small scale movements in a westerly direction Owing to strong fighter defence observation could be made over only part of the southern area. No changes were identified."

target was changed to a German airfield near Fuka. The force chosen for this raid consisted of twenty-one bombers led by No. 66 Squadron U.S.A.A.F. with twelve Kittyhawks of No. 450 as medium cover, twelve of No. 3 as top cover, and high above the formation a flight of Spitfires. A surprise attack was achieved and a number of fires were started for the loss of one Kittyhawk. These attacks on airfields were continued and although small groups of enemy fighters invariably sought to interfere, they achieved little. A similar force sent against Quatafiya on 26th October was attacked by four Me-109's but Cundy dived No. 260 against them, destroying two and driving the others away. The Australians next day led a force against Fuka, destroying a single Macchi 202 which made a desperate attack and did succeed in shooting down a Kittyhawk. Again on 28th October No. 3 was acting as top cover when three enemy fighters sought to attack the bombers before they reached Fuka, but Gibbes shot one down and the others failed to penetrate the heavy screen of R.A.F. fighters.⁴

Over the battlefield itself the Axis challenge was strong enough to confine a large proportion of R.A.F. fighters to interception patrols, especially on 26th October when fighting was widespread. Successful R.A.A.F. pilots included Pilot Officer Rose⁵ of No. 92 Squadron (Spitfires) and Pilot Officer Carrick⁶ of No. 213 Squadron (Hurricanes) and the enemy opposition could not reduce the power and frequency of the light-bomber sorties. On 26th October nine attacks were made in the battle area, the formations being twice led by No. 3. Next day when the *21st Panzer Division* moved northwards, ten of these mixed light-bomber and fighter-bomber formations were sent against it. On the 28th, when Rommel concentrated all his tanks against the southern side of the salient, seven raids were made in two hours and a half during the early afternoon and the enemy was so heavily bombed that his counter-attack was halted. In these raids some forty Australians flew with Nos. 55 and 223 Squadrons R.A.F. (Baltimores), and the two R.A.A.F. Kittyhawk squadrons provided escort for nine formations between 25th and 28th October without enemy aircraft once being able to break through to the bombers.

By the evening of 28th October the land battle gave the appearance of a temporary stalemate. Montgomery began to regroup for a more powerful assault, bringing up the 7th Armoured Division from the south, and at the same time ordering the 9th Australian Division to pinch off the coastal salient formed by earlier British gains in the north. Active fighting was confined to this sector during the next four days and numerous bombing attacks were made both on the *15th Panzer Division* and the *90th Light Division* to relieve pressure on the Australians. Twice on 29th October and five times during the next two days the Australian squadrons accompanied formations bombing enemy concentrations on this packed, narrow

⁴ On the basis of claims allowed during the war, this was the 200th enemy aircraft destroyed by 3 Sqn, a record for the Middle East. Allowing for inaccuracy of claims which affected all sqns equally, it is a fair measure of the eminent position of No. 3 as a fighting formation.

⁵ F-O G. W. Rose, 402954; 92 Sqn RAF. Grazier; of Dalgety, NSW; b. Dalgety, 18 Apr 1920. Killed in action 8 Jan 1943.

⁶ F-Lt G. Carrick, 405170; 213 Sqn RAF. Clerk; of Clayfield, Qld; b. Brisbane, 19 Nov 1919.

front and they prevented any effective German counter-attack. No. 3 also twice sent a force of twelve fighter-bombers to attack targets between Sidi Abd el Rahman and Ghazal while No. 450, fitted with long-range tanks, continued free-lance operations against dumps, bowlers, trucks and an airfield deep in enemy territory. These scourging trips of No. 450 were particularly profitable, although on 31st October the commanding officer, Williams, was forced down near Buq Buq and another pilot was lost on the following day. When Williams did not return, Flight Lieutenant Law,⁷ the senior flight commander, temporarily led No. 450 until 2nd November when Squadron Leader Barber⁸ arrived from No. 250 to take command.

The strong German defence during the first week of the fighting at El Alamein had been possible only by drawing heavily on any available reserve supplies. Events in the central Mediterranean at this time played no small part in the final victory, for anti-shipping squadrons excelled their previous high effort.¹ One small ship had succeeded in reaching Tobruk on 25th October only to be attacked twice and damaged by Beauforts of No. 47 Squadron R.A.F. Late that same afternoon a convoy of two freighters and one tanker, escorted by four destroyers, was sighted by a reconnaissance plane to the north-east of Benghazi. Wellingtons and Liberators attacked unsuccessfully during the night, and Baltimores shadowed it eastwards until noon on the 26th when Liberators again attacked. As soon as it came within range of Gianacalis, five Beauforts and four Bisleys of No. 47 were sent against it. In the face of intense shipborne fire and fighter opposition these aircraft concentrated on the tanker *Proserpina* (4,809 tons) which was set on fire, and although it remained afloat for several hours, it eventually sank. The cost of this success was high, for six aircraft and their crews, including four Australians, were lost. At 5 p.m. a second Beaufort strike was dispatched but failed to find the convoy and was hotly engaged by enemy fighters. By this time there were no further daylight torpedo aircraft available, and the convoy seemed likely to reach Tobruk before a night-striking force of Wellingtons could intercept it. It was decided, therefore, to accept the risk involved in a dusk operation by Wellingtons of No. 38. A formation of three aircraft led by Wiggins was sent to fly in formation at 100 feet and keeping sixty miles out to sea until due north of Tobruk, then to head straight for the convoy. Complete surprise was achieved through excellent navigation and the enemy were unaware of the danger until Wiggins was within two miles of the ships. The Wellingtons came in from the dark horizon with their target silhouetted against the setting sun and of six torpedoes launched, three ran well, striking the motor vessel *Tergeste* (5,890 tons) which exploded and sank. Too late the enemy guns came

⁷ F-Lt D. R. Law, 403140; 450 Sqn. Solicitor; of Grafton, NSW; b. Grafton, 21 Aug 1912.

⁸ W Cdr M. C. H. Barber, DFC, 80027 RAF. 250 Sqn RAF; comd 450 Sqn 1942-43; b. Craddock, Cape Province, S Af, 8 Aug 1912.

¹ Ciano noted in his diary: "The fight in Libya continues hard. We are holding on tenaciously. To hear the High Command talk, the only danger is our deficiency in supplies and transportation. Tactical situation good, logistic situation dangerous. I am no technician but I believe that in a battle of this kind logistics will play a decisive role."

into action. One Wellington was shot down and Wiggins' machine received several hits, but when another force from No. 38 arrived later that night all that remained of the convoy was the tanker *Proserpina* still burning after the Beaufort attack and settling low in the water.²

On 26th October a British submarine sank the tanker *Arca* (2,388 tons) near Crete. Two days later another convoy of one tanker and one freighter headed southwards, only to be intercepted by torpedo aircraft from Malta. The tanker *Luisiano* (2,552 tons) was sunk and the damaged freighter turned back. Two more small ships, the *Tripolino* (1,071 tons) and the *Ostia* (348 tons) were sunk by Wellingtons and Beauforts as they tried to reach Tobruk during the night of 31st October-1st November. One further enemy attempt to get supplies to Rommel almost succeeded when two ships eluded the night-searching Wellingtons and were within fifty miles of Tobruk on the morning of 2nd November when they were attacked by a mixed force of Beauforts and Beaufighters. The latter engaged fighters escorting the ships while Marshall led a section of No. 39 Squadron to set on fire one ship and damage the motor vessel *Brioni* (1,987 tons) which, although it completed its journey to Tobruk, was blown up as a result of a Liberator attack soon after it berthed. The damaged ship *Lara* (1,976 tons) struggled on until about twenty-five miles from Tobruk and then sank. After the failure of this convoy the enemy gave up attempts to reach Tobruk; of eleven ships dispatched, seven had been sunk and three heavily damaged at the very time when supplies were most desperately needed.³

Notwithstanding these losses Rommel increased his desperate counter-attacks in the northern sector where he had now concentrated all four German divisions (*15th* and *21st Panzer*, *90th Light* and *164th Infantry Divisions*). Four times on 1st November, Nos. 3 and 450 supported each other in a series of fighter-bomber attacks against these spearheads. The Kittyhawks carried four 40-lb anti-personnel bombs in addition to the normal 500-lb bombs. Their freedom from interception was in marked contrast to *Luftwaffe* formations, which made repeated but mainly unsuccessful attempts to evade our fighter patrols, and which sometimes jettisoned bombs over their own troops when attacked. Cundy and Sergeant Wild⁴ (No. 112 Squadron) were prominent in several actions against Stuka formations which tried to bomb the 9th Australian Division between 28th October and 1st November. Thus while R.A.F. domination of the

² This magnificent attack brought widespread congratulations including a signal from Gen Montgomery: "I would like to express my thanks for the way in which No. 201 Group are assisting to make easier the task of the Eighth Army. Recent attacks carried out against enemy ships so vital to his effort were a wonderful achievement. I would be grateful if you would convey to those responsible our gratitude for operations carried out which must be epics against ships at sea."

An oft-quoted, though probably apochryphal, anecdote tells that Rommel himself was on the heights of Tobruk and saw these ships sunk.

³ Ciano records as early as 29 Oct: "Bismarck has learned from Rintelen that Rommel is optimistic about the military qualities of his troops but that he is literally terrified by the supply situation. Just now not only is fuel lacking but also munitions and food." Prince Otto von Bismarck, a grandson of the "Iron Chancellor", was the counsellor of the German Embassy in Rome.

⁴ F-Lt R. A. Wild, DFC, 407884. 112 Sqn RAF, 3 Sqn. Tinsmith; of Laura, SA; b. Laura, 16 Jun 1922.

air restricted the efforts of both the *Luftwaffe* and the *Panzer Army Africa*, Montgomery methodically completed his preparations for a final breakthrough.

At 1 a.m. on 2nd November the 2nd New Zealand Division began to clear a path through the minefields, with the help of 100 sorties by Wellingtons which disrupted enemy movements in the Rahman-Ghazal area. By morning the 9th Armoured Brigade had followed the infantry forward, and, although severely punished by the German screen of anti-tank guns, they were soon joined by the 1st Armoured Division. Throughout the day a bitter and involved tank battle raged near Tel el Aqqaqir, above which powerful formations of light and fighter-bombers flew a shuttle service.

Shortly after 6 a.m. four Kittyhawks from each R.A.A.F. squadron took off to reconnoitre the front, and by 9 a.m. they were leading strong forces of light bombers to the targets discovered on these flights. Four times during the day they provided escort for No. 232 Wing whose attacks were all directed against German formations massing on the Rahman track north of Tel el Aqqaqir. In all thirteen attacks were made by formations of the light bombers and at nightfall eighty-five Wellingtons sent out in waves ensured that the weakening enemy forces were given no respite or opportunity for regrouping. Early on 3rd November scouting planes from No. 3 reported signs of an enemy withdrawal. After pounding targets in the battle area—now west of the Rahman track—during the morning, the bomber force began in the afternoon to attack the traffic streaming westwards along the coast road. From the last attack of the day the Australians returned to report that the road between Daba and Fuka was lined with burning vehicles. That night, infantry turned the German anti-tank screen and let the British tanks loose into open country. The battle of El Alamein was over.

The *Luftwaffe*, though outnumbered and outfought, continued to the end its unavailing attempts to interfere with R.A.F. operations. The R.A.A.F. squadrons lost three Kittyhawks during the two days of the final break-through, and, with fighters of No. 211 Group mostly engaged in harassing the retreating columns, the Me-109's were able on 3rd November to slip behind the front and deal severe blows to Hurricanes patrolling the rear battle area. On one occasion, after Nos. 127 and 80 Squadrons had broken up a large formation of Ju-87's, the former unit, acting as top cover was itself attacked by fifteen Me-109's and lost six Hurricanes, including three flown by Australians. Foskett had meanwhile led No. 80 in pursuit of the Stukas of which nineteen were claimed destroyed or probably destroyed. Although individual pilots showed initiative and courage, the Germans could mount only one sortie for every five flown by their opponents. The German Air Force had insufficient strength to attack effectively the Eighth Army or even to defend its own ground troops. Stuka formations achieved little while R.A.F. fighter losses were very small in relation to their battle tasks.⁵

⁵ Between 23 Oct and 3 Nov only 47 single-engined RAF fighters were lost. During this time they flew 2,734 sorties on offensive sweeps and 2,493 sorties on bomber-escort duties alone.

By the morning of 4th November the Axis army was in full retreat and, although a rearguard action was fought at Fuka, intensive bombing attacks gave Rommel little chance to regroup his forces and this line was broken on 5th November. Three days of heavy rain, which hampered air operations and two desert outflanking thrusts, enabled the Germans to draw ahead of their pursuers and by 11th November Egypt was left behind. Thereafter there was no halt until Agheila was reached twelve days later. The role assigned to the air force in the pursuit was that of causing the greatest possible congestion along the line of retreat. As early as 2nd November No. 239 Wing was ordered to check its mobility and at 9 a.m. on 5th November Gibbes of No. 3 and Barber of No. 450 dispatched westwards the advance parties of their squadrons. The first army units reached a Daba airfield that day to find Duncan⁶ already there selecting sites for R.A.F. supply dumps. Later in the day four Australian Kittyhawks flew over Daba and their report being favourable the serviceing parties continued their journey to arrive at dawn the next day followed during the afternoon by the aircraft of No. 239 Wing. Three days later the wing moved forward again to Sidi Haneish and until 19th November, when it reached Martuba, it was constantly advancing. These movements were not always easy for heavy rain and enemy mining confined traffic to the single coastal road. Air force convoys merged into an apparently endless stream of army vehicles packed nose to tail and moving westwards, fortunately immune from attack by the enemy. Progress was consequently slow at times and sometimes road parties took more than twenty-four hours to move from one airfield to the next. However, the anxiety of the fighter force to press forward sometimes astonished the army and on 9th November "B" party of No. 450, en route for Mischeifa, was halted by an armoured column whose commander suggested that it might be wiser to wait until Sidi Barrani was captured. The actual progress of the Eighth Army and of the Australian squadrons was:

Eighth Army		No. 239 Wing	
5-6 November	Fuka Escarpment	6 November	Daba
8 November	Mersa Matruh	9 November	Sidi Haneish
9 November	Sidi Barrani	11 November	Mischeifa
11 November	Halfaya	13 November	Sidi Azeiz
13 November	Tobruk	14 November	Gambut
19 November	Benghazi	15 November	Gazala
		19 November	Martuba

The untiring and often dangerous leap-frogging advance of the ground parties permitted air operations to continue without a check.⁷ On 4th November the Australians escorted 111 Baltimores and Mitchells in seven attacks between Ghazal and Fuka, themselves dropping fifty-seven bombs. Next day, however, their tasks were more varied, only one light-bomber

⁶ This officer was temporarily in charge of supply columns, which, with the airfield reconnaissance (RAF) and construction parties (Royal Engineers), went ahead with the forward troops.

⁷ Sqn Ldr Terry, formerly adjutant of No. 3 but now attached to HQ 239 Wing was killed on 16 Nov when the vehicle he was driving ran over a landmine. (Sqn Ldr B. M. Terry, 1562. Secretary; of Bacchus Marsh, Vic; b. London, Eng, 22 Sep 1905.)

formation being sent out and twenty-two of their forty-six sorties were devoted to independent fighter-bomber attacks along the road. In addition, twelve long-range Kittyhawks of No. 450 covered a New Zealand outflanking drive through the desert. From Daba their operations were restricted by weather, and in three days the Australians flew only seventy-five protective patrols and twenty-four sorties against enemy columns, losing one Kittyhawk shot down by ground fire on 8th November. The light bombers were out again on 9th November to strike at enemy traffic streaming through the passes at Salum and Halfaya, and No. 450 escorted two forces of Bostons against this ideal target. During the second raid eight Me-109's made a determined attack and shot down one Kittyhawk but again failed to reach the bombers. Sergeant Borthwick,⁸ pilot of the missing aircraft, had been wounded in both legs, and in his struggles to get clear of his crashing Kittyhawk he lost his water-bottle and emergency rations. He was well south in the desert, and though he bound his legs with strips torn from his parachute, he could not walk. In this apparently hopeless position he yet found within himself the determination to survive. For four days and nights he crawled northwards using his arms and what strength he had in his damaged left leg. Dew from desert flowers and beetles laboriously caught when they came within his reach were his only food and drink. On the fourth day he reached an Arab tomb, where at last he found shade and moisture, lying among hollow rocks. He was desperately weak and delirious when found next day by a British patrol. He had lost four stone in weight and his hands were worn into sores, but he was still conscious and undefeated in spirit.

This was the last time during the pursuit that suitable targets were available for light bombers, and henceforth, although the Wellingtons continued night attacks, most of the daylight attacks were delivered by the swiftly-advancing fighter aircraft. Even No. 239 Wing had few opportunities to bomb and the Australians found only one worthwhile target when at noon on 14th November they attacked 300 vehicles clustered together near Giovanni Berta. Most of their patrols were purely reconnaissance flights which, as they moved forward, covered the area as far west as Barce. On 12th November No. 3 was sent out, with No. 66 Squadron U.S.A.A.F., to attack barges by which the enemy was evacuating stores from Tobruk. These barges were found some twenty miles west of Tobruk and had a deck cargo consisting of petrol in drums. One barge was set afire and destroyed by each squadron in this attack and later in the day Cundy directed No. 260 in a similarly successful low-level attack. The previous day Cundy had also led this squadron to bomb one of the main Gambut airfields.

Most of the German rear columns had reached Benghazi on 16th November and for lack of vehicles and fuel a large fleet of Ju-52 transport aircraft was brought from Crete to help evacuation to Tripolitania. No.

⁸ F-O D. W. P. Borthwick, 401099. 450 and 78 Sqns. Student; of Sale, Vic; b. South Yarra, Vic, 8 Aug 1921.

239 Wing at Gazala was employed to prevent this traffic, and although Nos. 3 and 450 failed to make any interceptions, on 16th-17th November they made frequent attacks on the airfields at Berca and Magrun with good results. Twice they had minor clashes with Me-109's, claiming one and a half (shared with No. 112) for the loss of one Kittyhawk which collided with an enemy fighter and another shot down by the airfield defences. After 18th November, with the enemy falling back fast on Agedabia and Agheila, the fighter squadrons began at last to lag behind the retreat. Nevertheless they had reached Martuba and thus had secured, almost unnoticed, what had been one of the main strategic aims of the Western Desert campaigns—airfields from which the sea route to Malta could be dominated. Malta was short of supplies of every kind and it was imperative that a convoy should arrive as soon as possible, because Allied campaigns in the central Mediterranean would depend largely on the air strength which could be supported there. On 16th November a convoy of four ships sailed from Alexandria and under almost continuous watch by friendly fighters it reached Malta unscathed. Throughout the 18th No. 450 was employed entirely on this duty and drove off four Ju-88's which made a half-hearted approach. The convoy had only one night without escort and it then came under the protection of fighters based at Malta. Air power had won a decisive victory, and the 29,000 tons of supplies not only made possible increases in civil and military rations, but gave Malta fuel and ammunition with which to strike even harder against the enemy. Henceforth convoys were to arrive regularly, almost without incident. Fourteen merchant ships docked safely at Malta during December and none of the outward or return convoys suffered any serious enemy interference.

At Martuba, operational activity steadily declined. On the 19th and 20th patrols were flown ahead of Eighth Army units advancing towards Agedabia. No. 450 also gave protection to a convoy approaching Benghazi, but after 22nd November both Australian squadrons were rested. Their achievements during the previous month of sustained effort defy accurate assessment, because although they were continually in the forefront of the offensive, they were merely part of the hard-hitting tactical weapon forged by Coningham. They themselves lost 20 aircraft and 16 pilots, while claiming only $8\frac{1}{2}$ enemy machines destroyed and 10 probably destroyed, but their freedom of manoeuvre in combat was often limited by the prior need to protect bombers, or by the bombs which they themselves carried. No scientific bombing survey was undertaken, but the total effect of the havoc caused by Wellingtons, light bombers and fighter-bombers lay everywhere in the shape of twisted burnt-out wreckage on the battlefield and roads, railways and airfields lately held by the enemy. Perhaps the best evaluation, not only of the pilots but also of the administrative and maintenance sections of Nos. 3 and 450, is found in the stark record of the tremendous effort put into the air by the two squadrons during the various stages of the battle and pursuit:

Date	Escort	Bombing	Intercep- tion	Offensive patrol	Convoy	Total
Oct 20-23	86	52	6	24		168
Oct 24-28	133	155	12	18		318
Oct 29-Nov 4	156	241		32		429
Nov 5-22	59	83		352	33	527
	434	531	18	426	33	1,442

Evidence available from German records made during or shortly after the battle of Alamein does not assist greatly in assessing the part played by the air forces. All accounts refer to "lively air activity", "countless fighter-bomber and bomber attacks" and so on during the days immediately preceding the battle. It was the extraordinarily lavish artillery bombardment which opened the attack that excited the respect and envy of German observers, especially in the panzer divisions which were forced to ration their ammunition even during the hottest part of the fighting. German units were too strenuously engaged in repulsing and counter-attacking the superior British armoured forces during the first week to record more than "enemy aircraft were very active over the divisional sector throughout the day". Temporarily at least air attack, although annoying, was a minor danger, although by 2nd November when the *15th* and *21st Panzer Divisions* were massing as a mobile reserve force north of Tel el Aqqaqir and were not in contact with British ground forces they were seriously incommoded by air attack. In the conclusions of a summarised battle report called for at the end of November 1942 the *15th Panzer Division* specially mentions:

(c) Strong Air Support

and first class cooperation between the air force [i.e. British] and ground troops. British troops were always informed in good time of intended air attacks and conversely the air force was always informed of the strength and extent of concentrations

e.g. On 24th October 1942, nine massed bomber attacks were made between 7.45 a.m. and 3 p.m. on the Divisional Battle Headquarters area alone.

On 28th October 1942, five similar attacks were made between 1.30 p.m. and 2.20 p.m. on the Divisional Battle Headquarters alone.

British air attacks were always carried out fairly near the front line (sometimes only 2 kilometres).

However, the effect of the air attacks was not exploited.

The German accounts of the first few days of the retreat bear convincing testimony to the work of bombers and fighter-bombers in damaging, impeding and dispersing the columns, especially in the Salum-Capuzzo area. However, it is equally clear that not all the burnt-out tanks and motor vehicles lying in profusion in the wake of this retreat were the direct

victims of air attack. The *21st Panzer Division*, when it was ordered to fall back late on 3rd November, had already practically exhausted its fuel, and at the same time it was ordered to detach unit transport to evacuate as many personnel as possible of the *164th Infantry Division*. By 6th November it halted in defensive positions between Daba and the Fuka escarpment "as fuel stocks were no longer sufficient for the move to be continued, particularly in the case of tanks". An expedition sent out that day failed to secure fuel and a decision was made to blow up all tanks which could not reach the next fuel dump at Kilometre 20. All vehicles which fell out owing to lack of fuel or terrain difficulties were destroyed.⁹ There was no fuel at Kilometre 20 and the dump at Mersa Matruh was also empty, but by collecting small amounts from the hospital and other army installations there, the ever-dwindling transport of the *21st Panzer Division* finally reached a fuel dump at the road fork south-west of Mersa Matruh. Other German and Italian units experienced the same difficulties in varying degrees and it was the grim harvest of the torpedo bombers as well as the close-support aircraft which lay on the Egyptian sands. Thereafter, snowballing rapidly as it picked up previously static units, and hastily re-equipped with whatever could be taken from depots, the *Panzer Army Africa* sped quickly through Cyrenaica with relatively smaller losses to its key units.

During the inevitable lull before both British army and air force supplies and equipment could be replenished, all eyes turned to the west. On 8th November, while Rommel was being driven out of Egypt, the scope of operations in the Mediterranean was broadened by the Anglo-American landings in Morocco and Algeria. Plans for this enterprise, mindful of Oran, Dakar, Syria and Madagascar, had taken into consideration the possibilities of strong French resistance to British forces, and also of Axis-inspired Spanish intervention in Morocco. To counter such moves the initial British land and air contingents were comparatively small and the vastly superior American forces were ordered as a prerequisite of any advance to consolidate in Morocco and along the vulnerable lines of communication between Casablanca and Algiers until the political and military situations became clear. Nevertheless the desirability of occupying all Algeria and of gaining control of Tunisia was obvious. Once ashore all available units of the British First Army were pushed eastward as fast as possible. As soon as the Germans recovered from their initial surprise, they rushed troops by sea and air into Tunisia, aided by the vacillating attitude of French political and military authorities. These forces were sufficiently strong by the end of November to halt the British thrust some twenty-five miles west of Tunis. The enemy were thus able to secure the Tunisian plain and the eastern exits from the mountain passes.

The Anglo-American landing in North Africa had an immediate and profound effect on German air operations in many theatres. The Italian

⁹ Unfortunately the vehicle with most of the war diary documents broke down and was destroyed under these provisions.

fleet was immobilised, except for small units, through lack of fuel and the small U-boat force in the Mediterranean was ineffective. The main responsibility for attacking Allied shipping thus fell upon aircraft. On 8th November the Germans had in Sicily and Sardinia a total of 400 aircraft, while in the same area Italian strength was 515. Within a few weeks these were reinforced by another 500 aircraft. These included the élite force of bombers and torpedo carriers (150 aircraft) from northern Norway which had operated so successfully against convoys to Russia. This redistribution, although it brought difficulties in the western Mediterranean, was of immeasurable advantage to the Allies. The central and southern sectors of the Russian front were also weakened by the withdrawal of 120 long-range bombers and a similar number of fighters at the very time when a Russian offensive was being launched on the Don. Again by occupying southern France as a reprisal, the Germans widened their defence perimeter and transferred bombers, fighters and reconnaissance aircraft there from Holland, Belgium and northern France. Nevertheless, although it meant bankruptcy in other areas, this aggregation of strength permitted resolute German action in the central Mediterranean. Single-engined fighters and dive bombers began to move to Tunisia as early as 9th November and they were later joined by a few FW-190's, the first to appear in this theatre of war. Favoured by all-weather airfields at Bizerta and Tunis, the Germans were in the remarkable position of being able to maintain an equality with the numerically-superior Allied air forces which had great problems of supply and disposition which could only gradually be overcome. Air transport played a great part in the build up of Axis forces in Tunisia¹ and bombers made heavy raids from Sicilian airfields against Algiers, Bone and Bougie. These attacks certainly limited supplies for the British spear-heads which had rushed forward nearly 300 miles over bad roads and inhospitable terrain. The Ju-87, which currently was proving so ineffective in Cyrenaica, was also used with great resolution and effect in Tunisia, where at first it did not encounter comparable fighter opposition.

Eastern Air Command, the R.A.F. formation designed to assist First Army, consisted of only eighteen squadrons, of which thirteen were fighter squadrons, and could by no means play the same part in the battle for Tunisia. Static defence against enemy air activity claimed prior attention, while there were at first no forward airfields from which offensive activities could be mounted. Fighters, flown in from Gibraltar and moved up to hastily-cleared emergency fields, were mostly immobilised by the current heavy rains which turned the soil into quagmire.

During November and December 1942 some three dozen Australians served with Eastern Air Command. They were all junior in rank and scattered among twelve squadrons. Spitfire pilots had little opportunity to distinguish themselves but Flying Officer Spurgin² of No. 89 Squadron

¹ A daily average of 1,500 men with heavy weapons was transported by air during Nov, and by the end of the year Axis aircraft had carried to Tunisia 41,768 men, 8,614 tons of arms and ammunition and 1,472 tons of fuel oil.

² F-Lt A. L. M. Spurgin, DFC, 404120. 68 and 89 Sqns RAF, 87 Sqn. Tobacconist; of Brisbane; b. Brisbane, 4 Nov 1915.

of Beaufighters destroyed five enemy aircraft at night over Algiers. Squadron Leader Molesworth, who arrived at Blida on 15th November as a flight commander in No. 114 Squadron of Bisley light bombers, found no ground crews awaiting him, so that, to as high a degree as possible, aircrews had to service their own aircraft. He and two other Australian pilots joined in night attacks against the docks at Tunis and Bizerta, and in day attacks against German-held airfields. Daylight raids were soon abandoned because although "the flak was a picnic to anyone who had flown in Europe, fighter opposition was very good" and at this time British fighters patently could not accompany the bombers. In December, No. 114 moved up to Constantine and operated at night in support of the First Army, by bombing and strafing roads or enemy troop concentrations. Even when two Wellington squadrons arrived at Blida in December the level of air support for the First Army was far too low to be effective. It was evident that far more methodical preparation was necessary before the British could again advance, and fighting virtually ceased by the end of the month with the Germans firmly holding all eastern Tunisia.

An increasing number of Australians were transferred from Middle East Command to Malta, whose offensive capacity rose swiftly with the arrival of three more supply convoys during December.³ Some fifty R.A.A.F. men accompanied No. 272 Squadron (Beaufighters), Nos. 40 and 104 Squadrons (Wellington bombers) and No. 39 Squadron (Beauforts), which began to arrive on the island as early as 6th November in order to assist the initial assault at Algiers. The rapid swing of interest to Tunisia against which Allied armies began to press from two sides further increased the importance of Malta, for at least from there the R.A.F. could operate during winter months from adequately surfaced airfields.⁴ The Beauforts were soon withdrawn after a few mine-laying and bombing sorties to retrain for night operations as it was clear that enemy ships would attempt the relatively-short passage to Tunisia in darkness. Saville of No. 104 and Squadron Leader Powell⁵ of No. 40 led many Wellington raids against Tunisian and Sicilian airfields. The most spectacular of the early air operations, however, were conducted by Rankin, Coate, Pattearson and Pilot Officer Palmer,⁶ all of No. 272 Squadron. The first blow on 10th November came when Rankin led nine Beaufighters to attack a long line of transport aircraft assembled on the ground at El Aouina, near Tunis. Nine aircraft, mostly Ju-52's, were claimed as destroyed; seven by Rankin, Coate and Pattearson; and a further fifteen aircraft and two gliders were damaged. The raid had been unopposed, but

³ The stock of aviation spirit at Malta rose from 700 tons in early Nov to 10,800 tons at the end of Jan 1943. Similarly the stock of explosives was increased by 1,700 tons to 4,500 tons.

⁴ There were 5 landing grounds on the island. One runway at Qrendi came into use during Dec 1942. Development, previously limited by shortage of materials, labour and transport, was rapid after this date.

⁵ Sqn Ldr M. Powell, DFC, 402817. 117 Sqn RAF, 1 Air Ambulance Unit, 162 and 40 Sqn RAF, 463 Sqn. Field chemist; of Wooloowin, Qld; b. Mackay, Qld, 22 Jun 1914. Killed in action 11 May 1944.

⁶ F-O I. S. H. Palmer, 403783; 272 Sqn RAF. Journalist; of Levuka, Fiji, and Singapore; b. Levuka, 25 Aug 1910. Killed in action 11 Jan 1943.

surprise was unlikely to be achieved again, and the Beaufighters henceforth maintained small patrols between Cape Bon and Sicily to destroy enemy aircraft in the air. Few days passed without interceptions and of seventy transport aircraft that were believed shot down during November and December from the frequent Axis aerial convoys, the four Australians claimed ten. Towards the end of November the Beaufighters began to carry bombs and to roam as far afield as Tripoli to attack enemy naval and merchant shipping and targets of opportunity. Three more aircraft were shot down in these raids for the loss of Pattearson, who was captured, and on 10th December bombs fell close to shipping in Sousse harbour and started fires among unloaded cargo on the quay.

There was little bombing activity from Egypt during November and December because worthwhile targets were quickly out of range and there was natural reluctance to damage further ports and airfields which would quickly be overrun by the Eighth Army. Supply difficulties prevented the heavy, medium and light bombers from following on the heels of the army. No. 201 Group continued its prosecution of the war at sea although it also had to undertake vastly increased defensive duties for convoys to Tobruk and Benghazi. No. 458 Squadron was still mainly engaged in training, but Johnston dispatched four crews to Gambut for operations. This detachment flew 15 sorties during November—6 anti-submarine patrols, 6 anti-shipping strikes in the central Mediterranean and 3 flights to lay mines at Buerat el Hsun. This effort was increased during the next month to thirty-three sorties mostly against ports in the rear of the German positions in Tripolitania. After 16th November No. 14 Squadron (which had exchanged its Blenheims for Marauders) also joined No. 201 Group and began to sweep to Benghazi and beyond searching for enemy shipping. This squadron had a particularly high proportion of Australian aircrew; nine of seventeen captains were Australians and these flew 34 of the 68 patrols sent out before the end of the year. Attacks were made on enemy coastal ships, mines were laid in Tunis harbour and on 11th December four Marauders bombed the airfield and railway station at Gabes in Tunisia. In terms of the war of supplies there was already only one enemy front.

On 28th November No. 459 was ordered to move to Gianacalis and again on 18th December forward to Gambut, but the Hudsons were not called on for anti-shipping duties. They were employed, mainly at night, to escort Allied convoys along the Cyrenaican coast and even in these defensive duties there was a yeasty feeling of positive contribution to the final defeat of Rommel. Even before the main squadron moved, three crews had operated from Gianacalis and Gambut to cover the mid-November convoy to Malta, and to protect naval forces moving forward. Effort rose in December to 674 hours flying on 126 sorties as the Hudsons were often sent out at short notice when Sunderlands of No. 230 found sea conditions unsuitable for take off. Tension gradually eased as it became clear that U-boats were concentrating in the western and not the eastern

Mediterranean basin, and all flights were uneventful except on 9th December when Flying Officer O'Brien crashed at Gambut on return from patrol.

The lull in desert air fighting which set in during the third week of November lasted for approximately a fortnight. The Eighth Army was not ready to challenge Rommel in his positions at Agheila until considerable supplies had been received through Benghazi. German army units were well dispersed in the desert and the air force had withdrawn to airfields beyond the range of Allied fighters. Persistent bad weather also hindered No. 239 Wing, which used this not unwelcome pause to build up serviceability of aircraft. A few sorties were flown, only fourteen by Nos. 3 and 450, in attempts to intercept intruding aircraft, but without success. Then on 8th December, a few days before Montgomery proposed to assault Agheila, the Australians advanced to Belaudah to provide escorts for aircraft engaged on tactical reconnaissance. On the 11th, twelve Kittyhawks from No. 3 bombed the airfield at Nofilia, while Nos. 450 and 260 made challenging sweeps over Marble Arch.

Two days later, when Rommel began to withdraw, his forces drew up into columns which were heavily attacked by the light bombers and fighter-bombers. On the 13th the Australians flew 80 of the total 297 fighter-bomber sorties, and for three more days this pounding continued until the enemy once again drew out of range. Squadron maintenance parties went forward by road on 17th December but their progress was slow because there were many groups of German troops still active in the frontier area. Fortunately, Air Vice-Marshal Coningham had prepared for this emergency and sufficient transport aircraft were available to permit the transfer by air of essential petrol, oil, ammunition and a maintenance party. On 18th December No. 239 Wing was able to operate from the airfield at Marble Arch.

The importance attached by the Germans to delaying the hard-hitting British fighters was shown by the thorough manner in which Marble Arch had been mined. Only one strip on the very edge of the airfield was safe, and it was some days before the whole area could be cleared. Three men were killed and four seriously wounded when one member of an Australian party stood on a mine. Mining of airfields was henceforth a constant feature of the enemy retreat, and Australian maintenance parties were also to find the airfields ploughed in most complicated patterns. In many instances it was necessary to clear completely new areas.

From Marble Arch the Australians were able to continue their attack for two days against German troops falling back on Buerat el Hsun. They then reverted to patrolling over forward units of the Eighth Army, because German fighters reappeared in small numbers. On the afternoon of the 19th and again on the morning of the 21st, brief combats resulted from these patrols, during which two Messerschmitts were damaged and one Kittyhawk shot down. Immediately after the second combat six aircraft of No. 3 attacked the enemy airfield at Hun claiming six German fighters destroyed and others damaged. Two Australian pilots were shot down by anti-aircraft fire, but Gibbes landed alongside one of them, picked him

up, and, although a tyre burst on take-off, brought him back safely to Marble Arch. No further enemy aircraft were sighted until 30th December when the Australians flew from Alem el Gzina to protect troops in the Bir Ziden sector. During the morning eight aircraft of No. 450 had a confused but inconclusive clash with four Messerschmitts, but later in the day seven pilots of No. 3 scored a notable success when, without loss to themselves, they destroyed three Me-109's out of a force of fifteen. The indefatigable maintenance parties had already developed Alem el Gzina as an advanced airfield, and on 31st December No. 3 established its aircraft there while No. 450 moved to near-by Ghel.

In the Mediterranean, after many vicissitudes, the year 1942 thus ended well for the Allies. Defensively in the west and by a cautious but steady offensive in the east, the Allies hemmed in the Italo-German armies remaining on the African continent. It had been a victory greatly assisted by air power both in the logistical and tactical fields. The whittling away of enemy supplies had at times preoccupied most of the striking force of Middle East Command, but it had indeed taught Rommel that the desert was not only a tactician's paradise but also a quartermaster's hell.⁷ Equally important, the embryo tactical air force of fighters, fighter-bombers and light bombers created by Coningham had shown in retreat, static battle and in pursuit, ability to secure air superiority and then to exercise air power. Tactical flexibility of control had allowed heavy bombers and anti-shiping aircraft to join when required in the land battle.

In both the partnership of air and navy in the supply war and in the partnership of air and army in battle, Australian squadrons and individuals played a consistent though by no means a dominant part. On 30th December Australia maintained in this area only 3,400 men, almost evenly divided between aircrew and ground staff. There was still no cohesion in this force. Of seven R.A.A.F. squadrons only three (Nos. 3, 450 and 451) were truly Australian in character; two (Nos. 458 and 459) partly Australian, and two (Nos. 454 and 462) almost entirely non-Australian. The majority of aircrew, and a significant minority of ground staff served with non-Australian squadrons.⁸ All these men except those who, like No. 451, were engaged on static defence in the Levant, or, like No. 454, were deployed in remote sectors of the Middle East, added something to the tremendous effort exerted by the Royal Air Force, from which their individual exploits cannot be separated.

⁷ During 1943 Jodl declared: "The great operation planned against the Delta of the Nile in 1942-43 failed owing to our insufficient strength and inadequate supplies. For the first time our Western opponents showed themselves superior both technically and numerically in the air over the Mediterranean. Some of the finest German divisions fell victims to the stranglehold of a superior enemy air force on our supplies by sea."

⁸ There was actually a surplus of RAAF fitters from the large draft sent in 1941.

CHAPTER 15

CONQUEST OF TUNISIA

IN January 1943 the idea of defeat in Africa was still far from the German mind despite the warnings of El Alamein and the new Allied offensive from Algeria. All previous African campaigns had shown a repetitive pattern of victorious armies on both sides unable to exploit their victories because of insuperable difficulties of communication and supply. The Eighth Army was now hundreds of miles distant from its maintenance and supply facilities at the Delta, while General Eisenhower's forces in Algeria depended entirely on sea reinforcement routes, and moreover suffered considerably from divided control, inexperience, inadequate bases and a confused local political situation. Field Marshal Rommel and General von Arnim, who had arrived to command Axis forces in Tunisia to be known as *Fifth Panzer Army*, now had the advantage of comparatively short sea supply routes from Naples or Palermo to Tunis and Tripoli, and had secured the very strong defence positions and the major military facilities of Tunisia.¹ Supplies landed at Tunis or Bizerta could be employed in the battle line within forty-eight hours. The German air transport fleet, which had already done so much to mitigate the severity of Rommel's defeat in Egypt, could now operate with great regularity over the short route. As early as 6th January 1943, this reinforcement had been so successful that Eisenhower represented to the Combined Chiefs of Staff in Washington that "unless this can be materially and immediately reduced, the situation both here and in the Eighth Army area will deteriorate without doubt".²

German strategy in Tunisia was primarily defensive. The immediate aims were to prevent any junction between the powerful Allied armies deployed in Algeria and Tripolitania, and to ensure that Rommel would not be taken in the rear. Long-range intentions were a conscious attempt to prevent any all-out attack on a war-weary Italy and to deny the Mediterranean passage to British convoys which would add an invisible

¹ See *Fuehrer Conferences on Naval Affairs 1942*, pp. 70-71. Raeder reported to Hitler on 17 Nov 1942: "Tunisia always was and still is the decisive key position in the Mediterranean. The presence of Axis forces in Tunisia compels the enemy to employ considerable forces which must be supplied over long and vulnerable routes. It is a simple task, however, to supply our Armoured Army since our lines are short. At the same time the presence of our forces in Tunisia prevents enemy success, since passage through the Mediterranean is denied him."

Kesselring writing long after the event in his essay "The War in the Mediterranean", Part II, p. 3, stated that the German aim was "to fight doggedly as far away as possible in the North African theatre, so as to keep the Allied forces out of the European theatre of war, and especially from intervening on the continent". He admits that "supplies, especially petrol, will cause difficulties; this is where the abandonment of the attack on Malta in favour of the questionable operation of the Nile had its revenge" but (p. 11) he considered that at the end of November "the situation at sea as yet gave no cause for anxiety" and (p. 13) in January 1943 "the supply route by sea was still in operation and involving few losses; the air supply route was still unthreatened".

² Kesselring had switched all available freight aircraft to supply Tunisia even at the expense of Rommel who by continual disengaging actions was falling back along his own supply route and therefore was in less need of supplies than when standing at Alamein.

During Jan 1943 15,000 men, 4,700 tons of arms and 150 tons of fuel arrived by air in Tunisia. Although there was some diminution of the flow at the time Eisenhower made his plea, the value of this air transport to the enemy was considerable. In fact at a later stage it was an even more vital means of reinforcement.

5,000,000 tons to the Allied merchant navies, and thus counterbalance a whole year's effort of the U-boats, the main German strategic weapon. Conversely Allied strategy, defined at Casablanca as consecutive offensives against Tunisia and Sicily before the main assault against Germany, was conditional on the ability, in the face of opposition, to build up supplies and consolidate forward positions, and at the same time to disrupt enemy lines of communication in order to cripple the powers of resistance. Neither of the opposing long-term strategic agents, the U-boats and the R.A.F. bombing offensive, could operate decisively in time to affect this local campaign, although the U-boats did sink many thousands of tons of shipping intended for this area. Command of the sea and (especially in this area) its most significant extension, air power, would decide the question of supplies and therefore of the final battle.

German air dispositions to meet this situation led to the establishing in Tunisia and Tripolitania of two small tactical groups equipped preponderantly with single-engined fighters for interception duties and the defence of harbours and communications. Ground-attack and fighter-bomber aircraft gave close support both to Arnim and to Rommel, raising the total strength of each group to 150 aircraft.³ As the Axis-held territory diminished these forces merged into one. Long-range bombers were held in Sicily and Sardinia (a total of 270) and in Greece and Crete (75) to attack Allied convoys and disembarkation ports. These bombers were supported by the majority of available long-range scouting aircraft and some defensive fighters. Italian dispositions followed the same pattern.

Allied air forces, with the American contribution growing larger as more and more aircraft became available in Algeria, also required considerable reorganisation. Western Desert Air Force⁴ already had been virtually reduced to a small balanced force freed from static-defence duties and sufficiently mobile to keep pace with the Eighth Army. The core consisted of No. 244 (Fighter), No. 239 (Fighter-bomber), No. 3 S.A.A.F. (Light-bomber) and No. 285 (Reconnaissance) Wings, but at various times No. 249 (Transport), No. 7 S.A.A.F. (Fighter), No. 232 (Light-bomber) Wings and the truncated No. 205 (Medium-bomber) Group were also attached. The remaining aircraft in Middle East Command were organised in functional groups well suited to the main strategic battle of supply in that area, but Air Chief Marshal Tedder was anxious to extend this efficient and economical system to the entire Mediterranean. Accordingly in December he had advised General Eisenhower to accept a supreme air commander and to re-align the American Twelfth Air Force and the Royal Air Force Eastern Air Command into new functional, instead of national, formations which could coordinate their effort with that of Malta and

³ According to Kesselring, "The War in the Mediterranean", Part II, p. 20, *Fliegerkorps Tunis* was commanded by Lt-Gen Seideman with *Fliegerfuhrer 1* (Maj-Gen Rosch) supporting the northern front and *Fliegerfuhrer 3* (Maj-Gen Hagen) the Mareth front.

⁴ At this period the term Western Desert Air Force—sometimes just Desert Air Force—began to appear in signals although the title Western Desert Command was still used in Orders of Battle until it was absorbed by the North African Tactical Air Force. Thereafter Western Desert Air Force was the most common appellation until the end of the North African campaign when the shorter term Desert Air Force was employed. In view of changed circumstances and functions the word "force" is preferred to "command".

Middle East aircraft. Differing American opinions over control and, indeed, of principles of strategic bombing held up any decision until the Casablanca conference, when the whole command system, military and naval as well as air force, was appraised and recast. Tedder in conjunction with the Chief of the Air Staff put forward the obvious need for coordinated air action and their plan was approved.

The choice of Tedder as commander-in-chief of the new Mediterranean Air Command was perhaps automatic, certainly extremely popular and immediately successful. Tedder had been advised that he was to return to a high staff position in London and had already handed over command of Headquarters R.A.F. Middle East to Air Chief Marshal Sir Sholto Douglas⁵ on 11th January, but he was exceptionally keen to remain and work for the expulsion of Axis forces from Africa and, looking farther ahead, the complete liberation of the Mediterranean. First as deputy A.O.C. and then as A.O.C. Tedder had largely shaped the flexible British air force which both advancing and in retreat had struck hard at Rommel's army; which had learnt both to protect friendly and to attack enemy shipping; and in short through lessons learnt from successes as well as bitter experiences, could be re-aligned swiftly to meet the paramount need of the moment. Tedder had already done much to imbue British army and naval commanders with a realisation of the economy and tactical flexibility achieved by having the reins of air power held by one pair of hands, and he was the logical person to infuse this doctrine into the wider sphere. Equally important with his enthusiasm, calm purpose and clear-cut ideas, was his ability to persuade and convince without causing irritation. It was a difficult situation which had to be resolved, because the new and potentially-large American partner in Mediterranean air fighting neither from a national nor doctrinal point of view wished to be amalgamated with another force, however successful, until it had tried out its own preconceived ideas. A mutual petulance may well have arisen between ground and air commanders and even between air and air commanders had it not been for the fact that Tedder evoked a universal response of loyalty.

The Mediterranean Air Command did not officially become established until 17th February, commencing active direction the following day, but in practice much cooperation had been evident for a long time, for example the redeployment of anti-shipping Wellingtons on Malta to serve the needs of the First, rather than the Eighth, Army. The month which elapsed after the Casablanca conference was taken up with discussions in Cairo, Algiers and London, and correspondence with Washington concerning the details of organisation which would best afford parallel integration of air forces. As air commander-in-chief, Tedder was to be responsible to Eisenhower for all air forces stationed in the north-west African theatre, together with their operations, and also the employment of other Mediterranean air forces taking part in operations staged from north-west Africa. On the other hand

⁵ Marshal of RAF Lord Douglas, GCB, MC, DFC. (1914-18: RFC and RAF.) Asst Ch of Air Staff 1938-40; Dep CAS 1940; AOC-in-C Fighter Cd 1940-42, Middle East Cd 1943-44, Coastal Cd 1944-45; b. 23 Dec 1893.

Eisenhower was to make freely available any facilities within that area necessary to operate any part of the total air forces in the Mediterranean which it might be desirable to bring to bear on the enemy. As the immediate battle increasingly centred on Tunisia, the means at Tedder's disposal included the American Ninth and Twelfth Air Forces, R.A.F. Eastern Air Command, R.A.F. Middle East, R.A.F. Malta and, at least temporarily, R.A.F. Gibraltar.

The administrative functions of Mediterranean Air Command were to be effected by three major subordinate commands: North-West African Air Forces (Major-General Spaatz); Middle East Command (Air Chief Marshal Sir Sholto Douglas) and R.A.F. Malta Command (Air Vice-Marshal Sir Keith Park).⁶ Except for the elevation of Malta to a position of prime importance and independence this entailed little change from Tedder's past control of air forces in the eastern Mediterranean; but North-West African Air Force, into which progressively flowed more and more strength, completely changed the position existing in the western basin. General Spaatz's command was subdivided on the pattern of the old R.A.F. Middle East Command into functional sub-commands: a strategic-bomber force, a tactical force to support the armies and a naval-cooperation force. All sub-commands included both American and British units and the combined headquarters which controlled each of them had men of both nations intermingled at all levels, affording greater scope for mutual understanding and common action. This layering was also apparent with Allied army headquarters and simplified greatly the problem of effective air support.

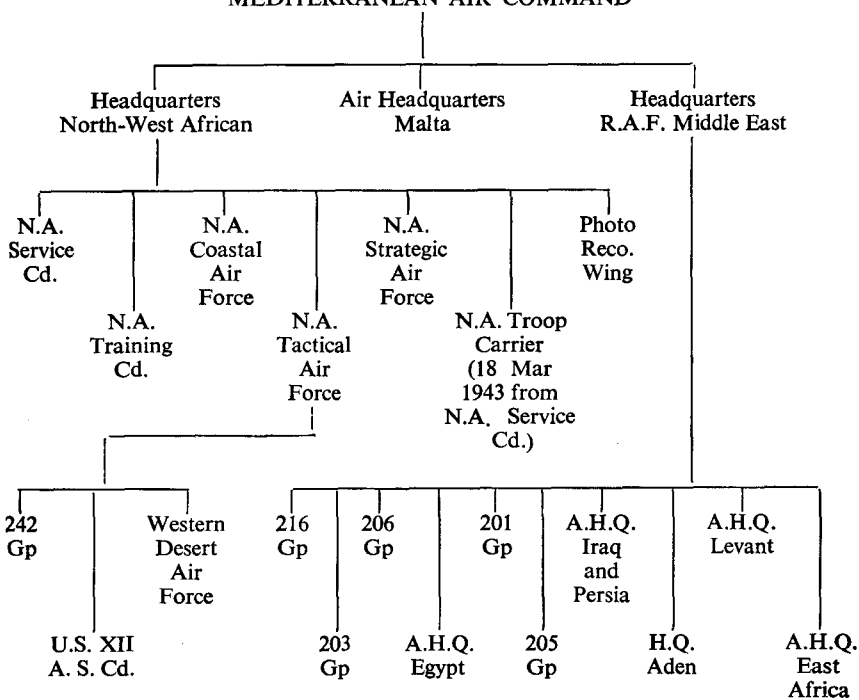
This reorganisation promised the full flexibility which is the keystone of air power. The intention was to concentrate it to the greatest detriment of the enemy, either in the front line of battle, throughout land or sea communication routes and deep into his base, support and supply areas. Hitting power was no longer to be parcelled out in "penny packets" to naval and land commanders, to fight with horizons limited to the view of relatively minor formations; neither was it to be tied down to particular areas whose importance might wax and wane during the main struggle. This was abundantly clear only three days after the official inception of Mediterranean Air Command. When the Eighth Army crossed into Tunisia to become part of General Alexander's⁷ new 18th Army Group, the Desert Air Force likewise transferred for operational command purposes to North-West African Air Force to form part of the Tactical Air Force sub-command. The system of air command, thus established, remained basically unchanged for nine months, although there were further accretions of strength to N.A.A.F., some new minor formations and some interchange

⁶ Air Chief Marshal Sir Keith Park, GCB, KBE, MC, DFC, RAF. (1915-17: NZ Fd Arty and R Fd Arty; 1917-18: RFC.) SASO HQ Fighter Cd 1938-40; AOC 11 Gp Fighter Cd 1940, Air HQ Egypt 1942, RAF Medit and Malta 1942-43; AOC-in-C Middle East 1944; Allied C-in-C SE Asia 1945-46. Regular air force offr; of Auckland, NZ; b. Thames, NZ, 15 Jun 1892.

⁷ Field Marshal Earl Alexander, KG, GCB, GCMG, CSI, DSO, MC. (1914-18: Lt-Col Irish Gds.) GOC 1 Div 1938-40; GOC-in-C Southern Cd UK 1940-42; GOC Burma 1942; C-in-C ME 1942-43; Dep C-in-C N Af 1943; GOC Allied Forces Italy 1943-44. Governor-General Canada 1945-52. Regular soldier; b. Co Tyrone, Ireland, 10 Dec 1891.

of units between sub-commands. For example, the American Ninth Air Force, which remained at first in the eastern Mediterranean, in June transferred its operational fighter units to the XII Air Support Command and then in October its bomber units to North African Strategic Air Force⁸ which earlier in June had also absorbed No. 205 Group R.A.F. although the latter force remained under the administrative control of H.Q. R.A.F. Middle East.

DIAGRAM OF OPERATIONAL CONTROL
OF
MEDITERRANEAN AIR COMMAND



Tedder thus had defensive formations guarding Allied sea communications on both flanks. More importantly he could direct offensive action against Tunisia from the east, west and north-east, without duplication of effort and without any limitation of object. The value of the new organisation lay in the extension of the principle of tactical flexibility upon which the achievements of British air forces in the Western Desert had been founded.

From a purely domestic Australian viewpoint this reorganisation to ensure operational efficiency caused further administrative difficulties because Australians were then deployed:

⁸ Other elements of Ninth Air Force moved to the United Kingdom to become a tactical air force in support of the OVERLORD plan.

Headquarters R.A.F. Middle East

Four squadrons (Nos. 451, 454, 459, 462) and approximately 230 aircrew and 200 ground staff serving with R.A.F. squadrons or maintenance units.

Air Headquarters, Malta

One squadron (No. 458) and 25 individuals.

North-West African Coastal Air Force

12 individuals (rising in March to 50 with the transfer of No. 14 Squadron R.A.F.) from Middle East Command.

North-West African Tactical Air Force

Two squadrons (Nos. 3 and 450), an ambulance unit (No. 1 A.A.U.) and 100 individuals.

North-West African Strategic Air Force

Eleven individuals.

This dispersal among different authorities came just when the Australian Liaison Office in Cairo had begun to smooth out many of the personal problems which had arisen during 1942. Discontent, varying from acute personal dissatisfaction to a cynical lack of faith or even apathy, had become widely evident during 1942 because of delay in commissioning Australian airmen and in confirming acting ranks granted in the field. Overseas Headquarters at the same time attempted to remedy these defects pointing out with truth that it was not getting the necessary information to make such decisions. Even when, on 13th June 1942, the Australian Air Board decided to re-establish the Liaison Office this confusion had not ended. The duties of its staff were still unknown in the Middle East on 15th September and as late as 13th November Air Marshal Drummond, in an exceptionally frank personal letter to Overseas Headquarters, commented: "The messing about of the Australian Liaison Staff at this Headquarters that is going on between you and Air Board is most unsatisfactory." However, faults lay by no means entirely with Australian authorities. Wing Commander Duncan assumed the position as liaison officer on 18th August, but Tedder was anxious to employ him in charge of advanced-airfield supply arrangements. Consequently as the liaison office establishment was for a group captain and Overseas Headquarters advised that Duncan could not be given acting rank as group captain but would be relieved by an officer sent from Australia, Tedder quietly carried his maxim of tactical flexibility into the personal field. Duncan was employed to organise supply columns during the pursuit of Rommel. Air Marshal Williams, however, uncomfortably aware that "the position of R.A.A.F. personnel in the Middle East is already the subject of Ministerial enquiries from Australia", demanded that he return to Cairo. His energy and personal knowledge of conditions in the field were great assets and to some extent lessened the difficulties caused by the increasing dispersal of Australians. His staff was small but received valuable assistance from the Australian padres who had recently been sent to the Middle East. On their regular circuits, the padres attempted to reach as many Australians as possible and certainly found themselves the target for more material than spiritual problems.

The story of Australians in the "remote commands" controlled by Headquarters R.A.F. Middle East is briefly told, because their numbers were never large and the commands themselves had declined considerably in operational importance. During the three months in which the Eighth Army had pursued Rommel from Alamein to the Tunisian border, the epic battle of Stalingrad had been fought, Russian offensives on the Novorossisk (on the Black Sea) and the near-by Maikop fronts had ended with enemy evacuation, enemy forces being cleared from the entire east bank of the Don River, and preoccupations elsewhere made it improbable that Germany, for some time at least, would be in a position to drive south-eastwards again. Consequently Air Headquarters Iraq and Persia began to disintegrate, the units of Deeforce passing to Air Defence Eastern Mediterranean before July 1943, one army-cooperation squadron (No. 208) transferring to the Levant and only token general-reconnaissance forces remaining. A score of Australian airmen had been present at the beginning of the year but engaged in only training or routine activities and accompanied their squadrons when they moved to more active areas. After March 1943, Air Headquarters Levant itself only controlled a number of meteorological flights and later No. 208 Squadron and was virtually non-operational by the end of the year. At Aden, however, there was a significant group of men, including two flight commanders with No. 8 Squadron R.A.F., when Air Vice-Marshal McNamara arrived on 9th January 1943 as air officer commanding. The only duties remaining for Headquarters Aden and Air Headquarters East Africa (where again approximately twenty Australians were disposed) was convoy-escort and anti-submarine patrols, which at this period held very little incident.

While interest declined within the remote commands, successful defence of Allied lines of communication in the eastern Mediterranean proved more simple than had been expected. As the battle line rolled westwards Air Headquarters Egypt expanded into A.H.Q. Air Defences Eastern Mediterranean (ADEM) controlling four fighter groups: at Tripoli (No. 210); Benina (No. 212); Alexandria (No. 219) and Haifa (No. 209). These aircraft, mostly Hurricanes, flew an average of 400 sorties a week in defence of supply convoys. If required this total could have been greatly increased, but German bombers in Crete showed little offensive spirit, and passage of ships through what had been known during 1941 and 1942 as "Bomb Alley" was regular and uneventful. The twenty-five Australian Hurricane pilots, remaining on static duties in Egypt and Libya, were joined early in January 1943 by No. 451, which for twelve months had maintained an unhappy existence as an unwanted army-cooperation squadron in Syria. Those who had cast longing eyes on the Western Desert during 1942 were bitterly disappointed when they actually reached it. Fighter defence at Mersa Matruh now showed little difference from that at Haifa, and the same lack of combat activity existed at Idku in the Delta to which airfield the squadron moved on 8th February.

The circumstances of No. 451 Squadron at this stage of the war are important to the story of Australian effort overseas although, and in fact

largely because, it was playing such an insignificant part in the actual fighting. Parallel or similar lessons may perhaps be apparent in some stages of the Pacific campaigns, but although frustration of various kinds often attacked individual Australians, this is perhaps the only instance in which a profound malaise seized a whole Australian squadron in the European theatre. Only the main threads and the major incidents can be detailed and it can readily be seen that much was unavoidable, or at least could have been prevented only by very thorough and wise administrative arrangements made well in advance. The reader will recall that this squadron was one of the first *Article XV* units to proceed overseas and, despite initial delay, it was in fact the first of these squadrons to engage in active operations against the enemy. The six months in the Western Desert between 1st July 1941 and 24th January 1942 had done much to give experience and corporate unity to the squadron, but very few of the aircrew had been Australian and there had been noticeable weakness among key non-commissioned officers, some of whom were rapidly promoted and, through no fault of their own, were not equal either in technical skill or disciplinary leadership to the posts they were required to fill.

In the desert the men of No. 451 were described as "keen to a fault without exception", but immediately the squadron moved out to rest and for the first time became almost entirely Australian, it began to feel redundant. The position early in 1942 was that there were already six army-cooperation squadrons in the Middle East and an additional South African squadron was soon to arrive, whereas Tedder had already ruled in December 1942 that only five were needed, and the trend of air war was diminishing the need for rigidly defined army-cooperation squadrons in favour of dual-purpose fighter squadrons. However, in the Levant during 1942 No. 451 did useful, if unexciting, cooperation work with Australian and other troops, maintained a scarecrow flight on Cyprus, and, in June, when no other unit could be spared, was ordered to undertake the fighter defence of Haifa. Later this duty was taken over by an American squadron of No. 57 Pursuit Group, but in September the Australians again assumed responsibility when the fighter squadrons moved to Egypt.

Besides its month-to-month emergency employment during 1942, No. 451 was standing by to be used with the Ninth British Army should the enemy break through in the Caucasus. When resounding victories in Africa and Russia late in 1942 made this development unlikely, joy was quickly overlaid with a new sense of frustration. Morale had already tended to fall among both aircrew and ground staff; inaction caused brooding over the existing dangers in the Pacific, and the apparent muddle of domestic R.A.A.F. affairs in the Middle East, and acute envy of squadrons in the front line. This sense of being "forgotten men" could have been partially avoided if good leadership had been available at all levels. The squadron was by no means forgotten by Headquarters R.A.F. Middle East, but unfortunately it was even more of an anachronism than when it first moved to Syria and thus difficult to fit in with current operations.

However, as early as 21st November 1942, the notes of the Deputy A.O.C.-in-C's weekly conference reveal the intention to move No. 451:

We should consider moving 451 Squadron to Benghazi later on so that the squadron could have a new form of life as they are rather "browned off" in the Levant. They should be used there in a similar capacity on fighter interception.

The same source records on 19th December:

451 Squadron is to be transferred to the control of AHQ Egypt for convoy protection duties. It will not be possible to re-equip this squadron and AOC Egypt has agreed to its use for convoy protection duties along the Egyptian coast.

The squadron was warned on 23rd December that it was henceforth under the control of A.H.Q. Egypt and should move to Mersa Matruh airfield by 8th January. At the same time No. 451 was authorised to re-equip from Hurricane I to Hurricane IIc aircraft at the rate of six per week, preference being given to the Australians over No. 237 Squadron R.A.F., another army-cooperation squadron which had also spent 1942 on emergency tasks in Iraq.

The warning orders for the squadron move specifically stated that it was to retain its army-cooperation status and accordingly moved to Egypt with 40 officers and 323 men in three flights, although there was no longer any Australian or other division with which it was required to train. The general feeling of the men was that they were "condemned to the morale-sapping permanent duty of defending centres remote from enemy activity . . . and training was necessarily an inefficient mixture of fighter tactics and half-hearted attempts to keep in army cooperation practice by the boring repetition of exercises". The commanding officer, Wing Commander Chapman, applied to Overseas Headquarters through Wing Commander Duncan, the R.A.A.F. liaison officer at Headquarters R.A.F. Middle East, for a transfer of the squadron back to Australia where it could either return to active operations as a complete unit, form three squadrons from the existing flights or become an army-cooperation training unit. This sentiment appears to have been widely held within the squadron and was undoubtedly influenced by the earlier return of Nos. 452 and 457 Squadrons in mid-1942. Neither the commanding officer nor the other proponents of this scheme seem to have had any firm conception of the provisions of the Empire Air Scheme under which they were then serving, or to have realised that the disposition of squadrons was one of high government policy rather than individual or common desire to undertake a more active role, however well meaning that might be. Duncan returned from a conference in London early in 1943 to inform Chapman that the suggestion had been rejected.

In an unhappy atmosphere, minor difficulties assume large proportions and inevitably exacerbate the position. An apparently senseless order early in January required No. 451 to collect six Hurricanes in Egypt and fly them to Haifa, although it was quite clear to all concerned that these aircraft would have to be flown back to Egypt on the following day when the whole unit was to move. On the other hand (as has been seen earlier) No. 451 claimed at the time of its move that certain unorthodox methods

of maintaining equipment and vehicle records and its failure to submit balance sheets for non-public funds were because the squadron was a Royal Australian Air Force unit and consequently not subject to supervision in these matters. This claim was refuted after some correspondence, but the squadron seems to have seized any chance of stressing its national identity at this time. On 23rd January a copy of a recent Australian establishment for an army-cooperation squadron in the Pacific reached No. 451 whose members regarded it as "drawn up specifically for this unit by the Air Board . . . apparently to supersede the R.A.F. Middle East army cooperation establishment on which the squadron was operating . . ." All these matters, petty in themselves, were considered live issues; they can but reflect the temporary loss of perspective.

Paradoxically the final spark which set aflame the withered hopes and dry muddled resentment of the Australians was Air Marshal Sholto Douglas' order on 22nd February, by which No. 451 was to convert temporarily to a two-flight fighter squadron. Withdrawal of the admittedly unemployed men and equipment held for army-cooperation duties was strenuously opposed and a new agitation arose for conversion to a front-line fighter squadron, or for the return of the complete unit to Australia. On 13th March Sholto Douglas visited the squadron and these views were put before him. The final crisis came on 27th March 1943 when Chapman wrote to Headquarters No. 219 Group urging that some definite decision should be made. Unfortunately this letter apparently condoned the poor state of morale, virtually accused Headquarters R.A.F. Middle East of misemploying the squadron against the express wishes of the Air Board, and hinted that "if the Australian Government learned that this Squadron was not required in the Middle East for Army Cooperation duty, the Unit would, in all probability, be withdrawn to the South-West Pacific theatre of war". Sincere as was his object, Chapman showed ignorance of the true provisions of the Empire Air Scheme and he was merely reflecting the existing confusion in the minds of many Australian airmen. He obviously desired a constructive solution but, as the letter passed progressively higher from authority to authority, it was at best classed as plaintive, and Sholto Douglas, who perhaps lacked Tedder's long experience and deep tolerance of Australians, took strong action. Chapman and his adjutant were replaced early in May, and on 15th June, after formal approval from Overseas Headquarters,⁹ No. 451 became an orthodox two-flight fighter squadron. It was not transformed immediately into a happy unit. The aircrew found no recompense in their rather infrequent patrols and the attachment of three Spitfires for high-altitude interceptions gave no fillip as they were hardly called upon. During the first six months of 1943 the squadron encountered only one enemy aircraft, a Ju-88, which had rather the better of a brief fight on 22nd February. During the same period No. 451 lost three aircraft on patrols when not in contact with the enemy.

⁹ Overseas Headquarters ruled that "only authority on future employment 451 Sqn is AOC in C". Compare Chapman's assertion. The constant referring back of policy matters concerning *Article XV* squadrons which should have been clear cut from the outset had in the past merely preserved the cloud of indecision.

Meanwhile units of No. 201 Group were stringing out along the Libyan coast to give anti-submarine protection to convoys. From Shallufa and later from Amiriya, the base party of No. 458 conducted 130 sweeps around or ahead of convoys while they were in the area of responsibility of No. 245 Wing. These patrols produced no incidents but a few mining and bombing flights against Cretan ports were welcomed as a faint echo of the more offensive duties of the crews attached to Malta. Farther west the same convoys were protected by No. 235 Wing at Gambut. Here No. 459 flew 480 patrols before the end of May. At first their flights were principally made at night but towards the end of March they engaged also in daylight sweeps at a considerable distance from the convoys. The Hudsons had no success in attacking U-boats, but although one merchant ship was sunk during January, another during February and two during March within their search sector, there was never any vital danger to the security of the seaborne supply route to Tripoli. No. 454, which had spent several months as a weak unit of Deeforce in Iraq and was now equipped with Baltimore aircraft, flew several anti-submarine patrols during March from Amiriya and then on 13th April joined No. 459 at Gambut. Stronger patrols were now possible around the convoys and enemy submarine pressure in this area relaxed.

The Australian anti-submarine squadrons did not suffer from the mental malaise which affected No. 451. There was in these units a greater admixture of men from the United Kingdom, Canada, New Zealand and South Africa, and exchange of ideas among men, all of whom were serving overseas, brought greater comprehension of the war as a whole. Again both in the air and on the ground Australians were kept consistently busy. Friendly rivalry between Nos. 454 and 459 gave added interest to featureless patrols, and even the most laborious ground jobs were done with enthusiasm in an endeavour to outshine each other. Wing Commanders Howson and Campbell, both long experienced in desert conditions, encouraged the squadrons, once operations were on a sound basis, to make their encampments as comfortable as possible. Much was done illegally under the smiling but unseeing eyes of higher authorities; much was done by hard common effort of all ranks in off-duty periods; both in creating and enjoying new amenities the squadrons raised their own morale and proofed themselves against many of the inevitable discomforts of life in the desert. No. 459 commandeered two German hangars for the officers' and sergeants' messes. The airmen's mess was a substantial structure of eight E.P.I.P. tents¹ backed by two others housing the main kitchen. An outside stage was built and later another one in the airmen's mess. Cement was "found", and all latrines, sick quarters, operations room, gunnery tent, signals section and parts of the maintenance section were duly floored. Living tents were made secure against the dust storms and rain common at Gambut, and even bitumen appeared miraculously to provide hard-standings for the rainy season which turned parts of the camp into a swamp. This purposeful

¹ E.P.I.P.—European Personnel Indian Pattern, the standard large issue tent. The sqn's correct allocation was 18 but in fact it possessed 40.

attitude extended to general activities; as many as ten cricket teams were formed; a successful variety show and a squadron magazine were produced; Toc H flourished; an "International Athletics Carnival" and "The First Grand Annual Western Desert Dog Show" were held. Practical comfort and improvised amusements went hand in hand to create the fine comradeship at Gambut.

At the western end of the Mediterranean Australians were far less prominent, and only a few individuals served with fighter and anti-submarine squadrons. The U-boats had greater opportunities and greater successes but could do little to reduce seriously the flow of Allied supplies. The German Air Force failed equally. Intensive operations during November and December 1942 had entailed heavy losses especially among torpedo-strike crews. Enemy training facilities were inadequate to maintain the front line and were themselves increasingly drawn on with fatal results for the future. One-third of the total German bomber effort was mis-employed on escorting convoys to Tunisia; attacks on convoys dwindled from a daily average of eleven during January to a daily average of two during April; attacks against Allied disembarkation ports averaged four daily throughout this period but they met strong fighter opposition and rarely had success.

Their defensive commitments adequately fulfilled, the Allied air forces waged an increasing offensive against enemy sea and air traffic between Italy and Tunisia. The air strength of Malta permitted the return there of British cruisers and destroyers. Other light naval forces were based at Bone, and after a heavy air attack against Naples which crippled three Italian cruisers, no surface challenge was possible. Consequently the threat of naval action forced Axis convoys to sail a direct route with only flanking minefields as protection, and they had to run through Allied submarine and air patrols. In January 1943, of 51 ships dispatched to Tunisia, 24 were sunk and 7 damaged; in February 13 out of 34 ships were sunk and one damaged; in March 17 out of 44 ships were sunk and 6 badly damaged. Twenty-seven of these ships were sunk either at sea or in harbour by air attack, and all the ships damaged fell victims to air attack. The loss was 226,500 tons of shipping or 54 per cent of the total dispatched.²

These successes were gained by all types of Allied bombers but the most significant event of January was the strengthening of the torpedo-bomber force at Malta. No. 221, a specialised night radar-search Wellington squadron arrived from the Middle East on the 10th, to be followed on the 23rd by the Beauforts of No. 39 whose crews were now retrained for night operations. The hybrid No. 69 R.A.F. was already operating one flight of Wellington torpedo bombers from Malta, and to this unit were attached crews and aircraft of Nos. 38 (R.A.F.) and 458 Squadrons. On 6th January three Australian Wellingtons reached Malta and others followed throughout the month until eighteen aircraft and crews were lodged with No. 69. This unusual situation was rectified on 6th February

² Vice-Adm Weichold, "War at Sea in the Mediterranean", Part II, paras 87 and 101.

when No. 458 became established in its own name, at the same time absorbing the original elements of No. 69 Special Duties Flight. To make room for this striking force, the two Wellington bomber squadrons were withdrawn from Malta but they continued to attack Italian ports from bases in Libya.

During January the Australians flew twenty-two armed night patrols over the Tyrrhenian Sea and Sicilian Narrows. Despite bad flying weather and occasional unreliability of radar sets, two effective attacks were made. On 18th-19th Flying Officer Prior³ damaged one of two merchant ships in a convoy located west of Marettimo Island off Sicily. Five nights later a composite force of six Wellingtons (Nos. 221 and 458) and four Beauforts (No. 39) found two more ships to the north of Sicily. Wing Commander Johnston torpedoed one vessel amidships and it finally sank after other aircraft had also scored hits. Later in the night a second Beaufort strike broke the remaining vessel in two.⁴

The Wellingtons flew seventy sorties during February mostly around the northern and western shores of Sicily. Only twice did the Australians find enemy ships, and their own attacks failed although on 24th-25th February, a following wave of Beauforts sank one of two ships reported by the Wellingtons. This action typifies the determination of Air Headquarters to hunt to the death any vessel within range. During the evening of 24th February Flying Officer Taylor⁵ found two ships escorted by three destroyers between Ustica Island and Palermo. He remained circling and dropped flares for an initial strike by three Beauforts which damaged one vessel. At midnight eight Wellingtons of No. 458 left Malta for a second attack. In bad weather two returned early to base and five failed to find the convoy but Pilot Officer Withecomb⁶ attacked with bombs and damaged but did not disable one of the ships. An hour later came the final and successful Beaufort attack.

Meanwhile Squadron Leaders Milson and Marshall and Pilot Officer Fraser⁷ of No. 39 all took part in one or more of the attacks culminating in the sinking late on 21st February of the transport *Thorsheimer* (9,955 tons) twenty miles south-west of Marsala. Marshall was killed while on a strike flown during 3rd March, but the other two shared in damaging another large tanker off Cape Stilo at 3.30 p.m. on 17th March, although Fraser was forced down and taken prisoner. Flying Officer Gale⁸ of No. 221 navigated a Wellington which sank the motor vessel *Manzoni* (3,955 tons) near Capri on 22nd March.

³ W Cdr R. H. Prior, DFC, 112748 RAF. 458 Sqn. 37 Sqn RAF; comd 221 Sqn RAF 1944-45. Schoolmaster; of Eastbourne, Sussex, Eng; b. Bognor Regis, Sussex, 8 Sep 1915.

⁴ Italian records show the sinking by aerial torpedoes of *Pistoia* (2,448 tons) and *Verona* (4,459).

⁵ F-Lt J. L. Taylor, 118487 RAF. 69 Sqn RAF, 458 Sqn. Metropolitan police inspector; of Penzance, Cornwall and London; b. Penzance, 18 Aug 1911. Killed in action 28 Apr 1943.

⁶ F-Lt J. E. Withecomb, 401843; 458 Sqn. School teacher; of Colac, Vic; b. Colac, 7 Feb 1916.

⁷ F-Lt D. I. Fraser, 402824; 39 Sqn RAF. Accountant; of Launceston, Tas; b. Launceston, 12 Mar 1915.

⁸ F-O K. W. Gale, DFC, 404241. 458 Sqn, 221, 139 and 627 Sqn RAF. Clerk; of Gladstone, Qld; b. Brisbane, 12 Apr 1920. Killed in action 8 Jun 1944.

During the first two months at Malta No. 458 suffered heavy losses. Four Wellingtons were lost at sea and another four crashed on return to Malta. On 3rd March it was necessary to transfer sixteen aircrew members from No. 38 Squadron in order to maintain operational strength. This further increased the cosmopolitan, rather than national, character of No. 458 which was forced to absorb whatever torpedo-trained men were available. Another three Wellingtons were lost during sixty-nine patrols conducted in March. The only visible success was damage to an Italian destroyer and a merchant ship during a joint attack with aircraft of No. 221 Squadron and No. 812 Squadron [Fleet Air Arm] on 13th-14th March and to another vessel on 20th-21st. The true value of this constant pressure by Wellingtons was that it forced the enemy to discontinue large convoys from Naples, and to attempt daylight passage to Tunis from Palermo and Trapani under cover of heavy naval and air escort. This not only had a disastrous effect on German offensive air operations but also gave excellent opportunities for attacks by American Fortresses and Marauders against both the over-crowded Sicilian ports and the convoys at sea.⁹ Actual sinkings were henceforth mostly achieved by bombers, but success was really due to the complementary pressure exerted by several elements of the Allied air forces.

This changing situation caused the transfer of No. 14 Squadron R.A.F. with its large Australian aircrew complement from the Middle East to Blida in Algeria. From Berca and Gambut the Marauders had scoured the Aegean during the early months of 1943 to disrupt sea communications between the enemy-occupied islands. These daring raids tended, as in the central Mediterranean, to throw the German Air Force on to the defensive. On 20th January Pilot Officer Elliot torpedoed and sank the small motor tanker *Alfredo* (654 tons) south of Milos. A month later, on 21st February, nine Marauders left Gambut shortly after noon to attack the harbour and shipping at Milos and both Pilot Officer Clarke-Hall¹ and Flying Officer Lapthorne² saw their torpedoes hit vessels at anchor there. The Marauders were now required for daylight reconnaissance round Sicily, because their speed and the specialised experience of their crews made them the ideal scouting link for American bombing forces. During April and May Australian captains flew 101 out of 150 sorties performed by the squadron on this task. Again the essentially indivisible nature of air power was demonstrated. One over-all command permitted the swift transfer of a squadron from Libya to help existing forces in Algeria capitalise on a situation largely created by air pressure from Malta.

Other Australians from bases strung out between Aden and Gibraltar were engaged defensively or offensively in the strategic war of supplies but prime Australian interest still lay in the operations of the Desert Air Force.

⁹ Compare the effect in the U-boat warfare in the Bay of Biscay of Leigh-light radar-Wellingtons.

¹ F-Lt G. W. Clarke-Hall, DFC, 406235; 14 Sqn RAF. Bank clerk; of Albany, WA; b. Broome, WA, 9 Apr 1915.

² F-Lt R. W. Lapthorne, DFC, 401040; 14 Sqn RAF. Printer; of Drouin, Vic; b. Daylesford, Vic, 12 Aug 1917.



R.A.F. members of No. 454 Squadron playing Soccer, Western Desert 1943.

(R.A.A.F.)



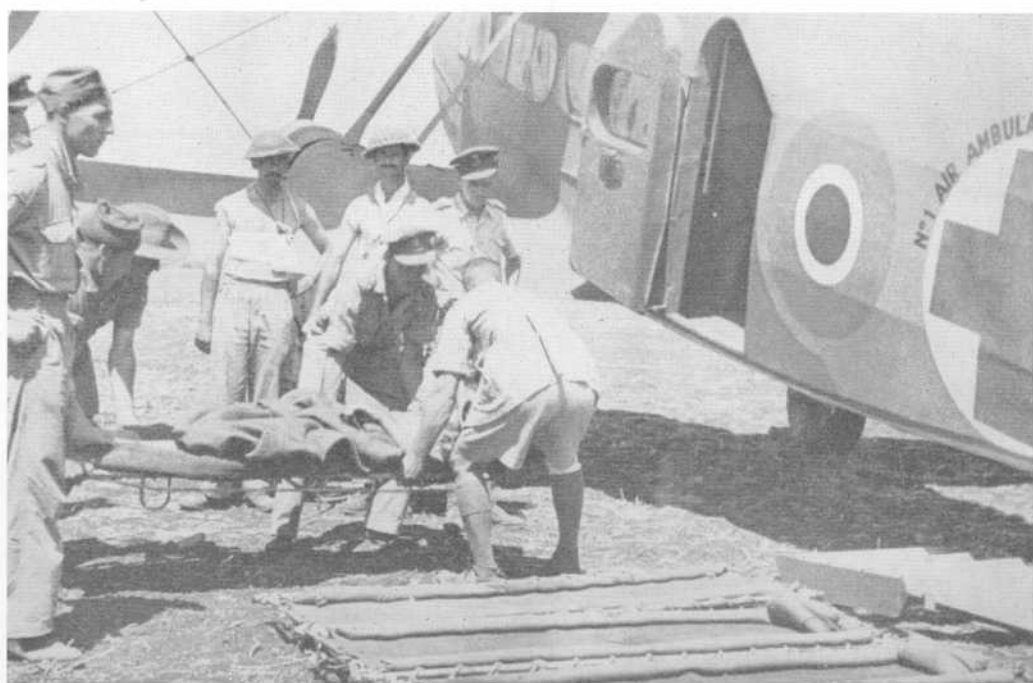
An Australian Rules football match was played at Gezira Sporting Club, Cairo, between two R.A.A.F. teams, 1943.

(R.A.A.F.)



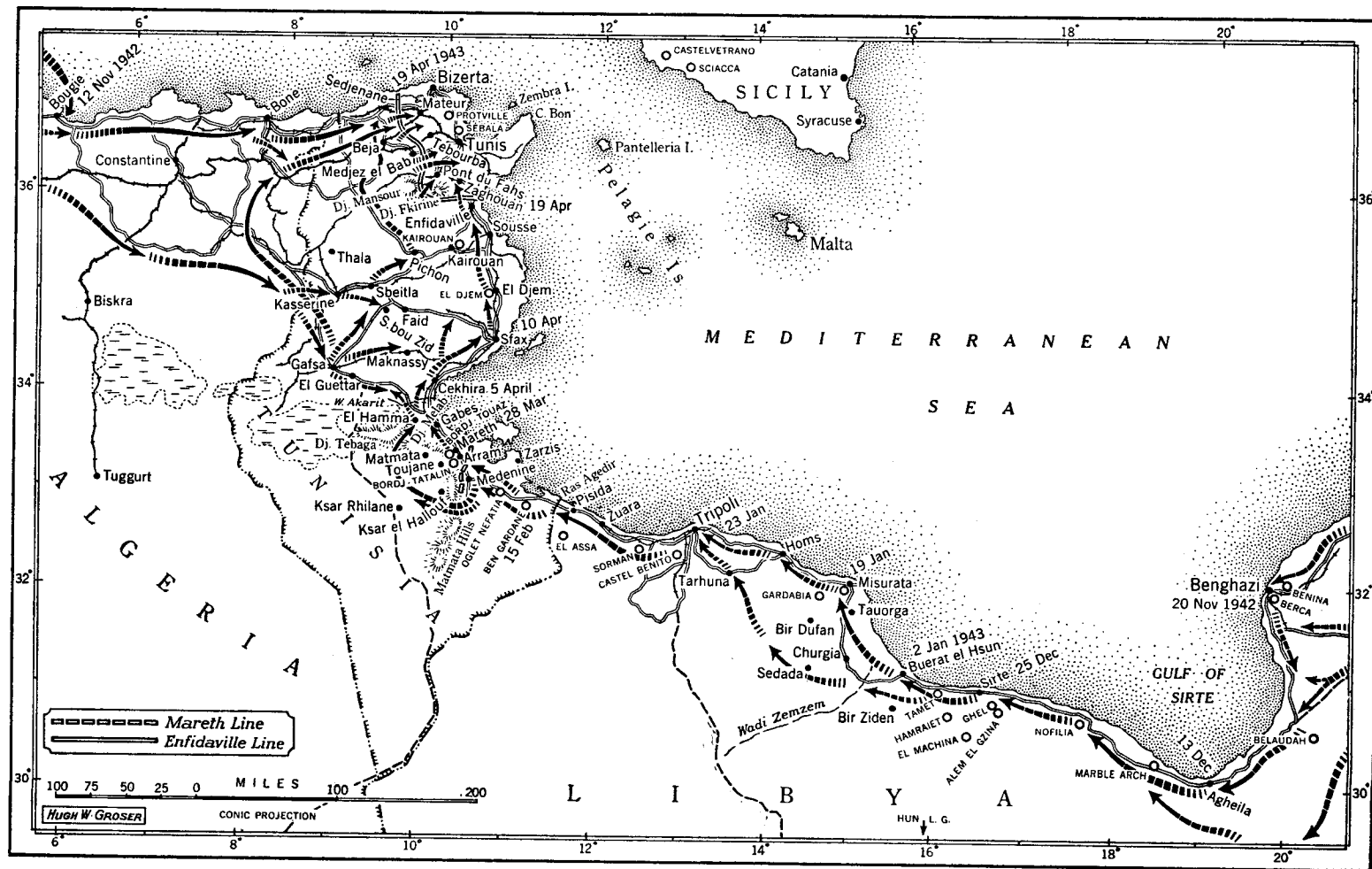
Airmen of No. 454 Squadron at lunch, Gambut, Cyrenaica 1943.

(R.A.A.F.)



Wounded British soldiers being prepared for evacuation in a DH-86 of No. 1 Air Ambulance Unit, Western Desert.

(Air Ministry)



The Final African Campaign.

January opened quietly for the two Australian Kittyhawk squadrons, partly because of bad weather but chiefly because it was not possible to use the Tamet airfield. Construction parties immediately began to make three new landing grounds at Hamraïet, twenty miles south-west of Sirte but these were not fit for operations until the 9th. On 1st January the German Air Force showed that it could still gain small tactical successes in surprise attacks, when five Me-109's dived on twelve Kittyhawks of No. 3 engaged on a reconnaissance sortie over the Tauorga-Churgia road. Two Kittyhawks were shot down in the initial swoop but both pilots managed to regain their unit, and the Messerschmitts did not wait for a full-scale battle.

From 9th January Western Desert Air Force began a period of intensive operations which ended only after Tripoli had been captured. Rommel had already begun to withdraw some of his units from the Buerat line against which the Eighth Army was massing, but to hinder this withdrawal and to render his supply problems even more difficult, heavy and medium bombers by night and fighter-bombers by day, attacked roads in his rear. The Australians' task was to bomb and machine-gun vehicles supplying the main enemy positions based on the Wadi Zemzem. After four days of this activity they began to attack German airfields in preparation for Montgomery's assault, timed for 14th January. On 13th January Sergeant O'Neil³ came down so low to strafe an enemy column near Tauorga airfield that his propeller hit a small rise, and as his engine rapidly overheated he was forced to land behind the German lines. Scantly disguised he worked his way eastward through enemy strong points and was back with his squadron on the 15th.⁴ In his absence, the Australians had suffered a serious setback when, on the 14th, after an early-morning attack on Tauorga, they had set out at 11.30 a.m. with eighteen Bostons to bomb Bir Dufan. The first seaward leg was uneventful, but as the formation turned south it was met by twenty Me-109's and Mc-202's which attacked repeatedly and with spirit. The Bostons successfully bombed their target and were withdrawn unscathed, but only at the cost of nine Australian and two other Kittyhawks. Enemy losses were certainly lighter, only six Messerschmitts being claimed as destroyed.⁵ Later the same day another Kittyhawk of No. 3 was shot down during a skirmish with German fighters. Fortunately Squadron Leader Gibbes and two pilots of No. 450 rejoined their units by 20th January, while another was later rescued at Tripoli, but only one of the other six pilots survived as a prisoner of war. Though costly, the airfield attacks achieved their purpose for enemy aircraft made little intervention in the ground battle and the Australian squadrons were called on only once—twelve Kittyhawks providing cover for New Zealanders moving round the southern flank of the enemy positions.

³ F-Lt G. C. W. O'Neil, DFC, MM, 403475. 450 and 451 Sqns. Jackaroo; of Cremorne, NSW; b. Vaucluse, NSW, 10 Oct 1915.

⁴ O'Neil was awarded an MM for this evasion.

⁵ German records reveal the loss of only 4 single-engined fighters and damage to one more in the whole African theatre on this day. Italian losses are not known.

By the evening of 15th January the Buerat line had been breached, and as the Axis forces fell back towards the hilly country covering Tripoli, they were harassed relentlessly from the air. On the 18th Nos. 239 and 244 Groups moved by air to Sedada⁶ and were operating next day from improvised landing strips near Bir Dufan, itself too heavily bombed and mined for immediate use. During the whole period of five days ending 20th January the two Australian squadrons flew 229 sorties, almost all against retiring enemy troops, but including two airfield attacks and one reconnaissance. Air opposition was negligible, but light-calibre guns on trucks shot down three aircraft of No. 450. The Eighth Army had now occupied Tarhuna and Homs and, in the hope that the impetus of this drive would carry the advance beyond Tripoli, No. 239 Wing was directed to attack traffic to the west of that city. On 21st January the Australians flew forty-eight sorties losing one pilot. Next day, against stiffer opposition, they increased their effort to sixty-six flights, claiming five enemy fighters destroyed for the loss of three Kittyhawks. On 23rd January British troops entered Tripoli, but by this time few targets were within fighter range, and there was a temporary lull until the afternoon of 24th January when No. 239 Wing took off from Castel Benito to attack the Tunisian airfields at Ben Gardane, to which the enemy fighters had withdrawn. Bombs fell in the dispersal area and later all four squadrons machine-gunned a column of 100 vehicles while two pilots of No. 450 brought down a Ju-88.

Progress on land was slow after the capture of Tripoli, for that port had been so blocked by bombing and enemy demolition that it could not immediately be used for supply convoys. Rommel was thus able to withdraw at his own pace and his rearguards did not cross the frontier until 4th February. The Australians meanwhile remained at Castel Benito in welcome green countryside with gum trees which reminded them of home; but they were by no means idle. Land targets were scarce after 26th January but the fighter-bombers were employed mainly to attack small craft in which enemy supplies were brought down the Tunisian coast to the minor Tripolitanian ports of Zuara and Pisida. A number of near misses and a few direct hits were claimed but the Australians had no outstanding success. This pressure, in conjunction with far heavier bombing assaults by American aircraft from North-West Africa, did, however, limit the coastal supplies for Rommel, who in future relied almost exclusively on road and rail haulage direct from Tunis and Bizerta.

On 4th February, with the Eighth Army pushing cautiously along the single heavily-mined road running across marshy salt flats near Ras Agedir, No. 239 Wing reverted to armed-reconnaissance sweeps. The Kittyhawks could barely reach Zarzis and Ben Gardane where German rearguards were constructing further road blocks and maintaining artillery fire on the coastal road. Accordingly on the 7th advance parties of each squadron

⁶ The value of air transport for essential maintenance crews was again demonstrated on this occasion because the Sedada Wadi had been efficiently mined and the ground parties were considerably delayed.

went forward to Sorman, forty-five miles west of Tripoli to establish a base nearer the frontier. Here they spent a most unpleasant week trying to put the marshy landing ground into flying condition, but the attempt was abandoned on the 14th when they moved on to El Assa. The heavy rains hindered both ground and air activity and only on 16th February were the Australians able to fly with any intensity. On that day sixty sorties harried road transport around Ben Gardane and Medenine and at the same time covered the advanced British elements. Rommel had already withdrawn the *21st Panzer Division* for the western Tunisian front, and was now able to retreat without serious interference from the air into the Mareth line. His successful rearguards had given time for the old French military fortifications to be greatly strengthened.

With land fighting now confined to Tunisia the two theatres of war in North Africa become one. Rommel, in command of the new *Army Group of Tunis*,⁷ held the most favourable positions he could expect along the whole line of battle; supplies, troops and aircraft could be moved swiftly to any point of the defence perimeter.⁸ Already during January limited German offensives around Pont du Fahs and Faid had strengthened his western front, and on 14th February a more ambitious drive was made through Sbeitla and Kasserine towards Thala. After a week these forces began to retire but on the 26th Arnim began opportunist thrusts from Mateur to Beja and Sedjenane. This last offensive covered the withdrawal of German armoured units employed at Kasserine back to Mareth. Rommel hoped by these forays to retain tactical initiative in the land battle.

Meanwhile, activity in the south was only spasmodic. Montgomery was building up supplies before launching a full-scale attack on the strongest enemy defences he had encountered since El Alamein. Bad weather and enemy inaction provided few targets for air attack, and the Australian Kittyhawks flew only thirty sorties during the week ending 23rd February. Middle East bombers, including Halifaxes of No. 462 Squadron, were now established at Misurata, and on 23rd-24th they began to attack Gabes airfield, previously bombed repeatedly by American aircraft. The familiar pattern of ensuring local air supremacy before a land battle thus began, and reverting to the tactics so successful at Daba in October, these night raids were followed by dawn Kittyhawk attacks. The Australians substituted six 40-lb bombs instead of a single 250-lb bomb in order to increase the damage among dispersed aircraft. Early morning visibility was bad and on occasion alternative road targets were attacked, but the general success may be gauged by the strenuous efforts made by the Germans to oppose

⁷ Rommel actually took over as C-in-C on 23 Feb. The *Army Group Tunis* consisted of the *Fifth Panzer Army* (Gen von Arnim) and the *Italian First Army* (Field Marshal Messe), the bulk of which comprised German units.

Kesselring in "War in the Mediterranean", Part II, p. 18, states: "My plan of operations which was also approved by Commando Supremo and OKW was—now that both fronts had joined into one theatre of war—to attack them one at a time. By this means the very least that ought to be achieved was to delay the expected enemy offensive by weeks, or if possible by months. That meant that one had to cause the enemy to lose so much men and material that these would have to be replaced from overseas. It would be best if one could fall on him while he was preparing for his offensive and throw him into utter confusion"

them. Shortly after 8 a.m. on 26th February, after Gabes-West airfield had been bombed, Nos. 3 and 450 were intercepted by fifteen Me-109's and lost two Kittyhawks with three more damaged. Later the same day over Bordj-Touaz, an advanced enemy airfield south-west of Mareth, more satisfactory results were obtained and three enemy fighters were claimed as shot down for the loss of one Kittyhawk, whose pilot returned safely to El Assa. Yet another Messerschmitt was destroyed the following day over El Hamma, and a force sent to bomb Bordj-Tatalin during the afternoon could find no aircraft there. This short but intensive four-day offensive during which the Australians flew 159 sorties was apparently successful in compelling the enemy to abandon many of his forward airfields.

A brief lull followed while No. 239 Wing prepared a new base at Oglet Nefatia, but on 3rd March the Kittyhawks were sent to investigate reports of enemy troop movements south of Gabes. They confirmed that the Mareth positions were being greatly reinforced and on the following day flew 36 out of 77 fighter-bomber sorties against enemy road columns. It was appreciated that Rommel, having secured his western flank by a firm hold on the areas around Sbeitla, Sidi bou Zid, and Gafsa, now intended to attack through the Matmata Hills, seize Medenine and thus cut off the British divisions in front of the Mareth line. On the 5th sandstorms hampered No. 239 Wing, but when early on the 6th the enemy attacked in three columns, Montgomery had been adequately warned. The Australians could still fly only eighteen sorties that day and they achieved no definite results, but the land battle had already followed the lines of the abortive September offensive at El Alamein. Massive concentrations of field, medium and anti-tank guns sited along the high ground north-west of Medenine effectively barred the way to elements of the *10th*, *15th* and *21st Panzer Divisions* which abandoned fifty tanks before they withdrew at nightfall. The sand-storms had abated but low cloud made it very difficult for the Kittyhawks to harass these forces as they withdrew through the hills near Ksar el Hallouf and Toujane.⁹ On 7th March the Australians had only the minor satisfaction of shooting down one of fifteen Me-109's which they encountered during their armed reconnaissances.

After this defensive battle at Medenine had been won, both air and ground forces prepared for an assault against Mareth timed for 20th March. No. 232 Wing of light bombers came forward from Egypt to join No. 3 S.A.A.F. Wing at Ben Gardane and with fighters and fighter-bombers handily based at Oglet Nefatia, tactical support seemed amply assured. The preparations were halted only once, on 10th March, when

⁹ Five German divisions and parts of three Italian divisions were available for this attack.

Kesselring in "War in the Mediterranean", Part II, places great emphasis on the failure of this attack. Some of his despondency may well be attributed to hindsight. "... When the attack made no headway on the first day, Rommel made the only correct decision to retire to his initial positions (8th March). Our hand in Tunisia had played its last trump. The hope of keeping the war away from Europe and especially from Italy for another year had been gambled away..." However, Rommel who, for some time, had been in ill health asked to be relieved and Arnim replaced him as C-in-C *Army Group Tunis* while General von Vaerst took over *Fifth Panzer Army*.

an urgent call for assistance came from General Leclerc,¹ who was leading a French contingent from Lake Chad to Tunisia. This force was weak but it had reached Ksar Rhilane, an important position on the only route by which the Matmata Hills could be passed. Arnim sent armoured units and dive bombers to ambush Leclerc's troops, but American and British aircraft in turn attacked the Germans. Twelve Kittyhawks from each Australian squadron bombed and strafed a column of fifty vehicles, destroying fifteen including an armoured car, and damaging several others. Escorting Spitfires cleared the air of German aircraft, and, under threat of similar air attack, the enemy withdrew at nightfall.

The opening moves of the land offensive came during the night of 16th-17th March when General Montgomery launched a limited probing attack to establish firm contact with enemy forces near Arrâm. Next day II American Corps thrust eastwards against Gafsa and advanced to capture El Guettar on the 19th. During these three days air operations were again impracticable because of bad weather but somewhat belatedly on the 19th-20th heavy bombing attacks were directed against German airfields around Gabes and Sfax. The first serious air assault on the Mareth positions preceded the land offensive by a few hours only. On 20th March the Australian squadrons escorted three of the nine light-bomber formations which bombed tactical targets.² The absence of enemy air opposition revealed how successful had been the earlier airfield attacks. Wellingtons and Halifaxes, employing their usual flare technique, continued the attack that night while the Eighth Army pushed forward in a frontal assault and also sent the New Zealand Corps to outflank the western end of the line.

After one attack early on the 21st against Mareth, Nos. 3 and 450 were engaged throughout the remainder of the battle in supporting the out-flanking drive. The New Zealanders met stiff opposition near the Djebel Melab because the Germans were astride two hills guarding the approaches to El Hamma. At 8 a.m. on the 21st twelve Kittyhawks of No. 3 set seven vehicles on fire in this sector. Later in the day with Nos. 450 and 112 they returned to attack German reinforcements moving south from El Hamma. Next morning No. 3 Squadron located about forty German tanks in the western sector, warned the New Zealanders and then attacked. Gibbes led a force including Hurricane IID "tank-busters" back to the area that afternoon and another three attacks were made on 23rd March against ever-increasing anti-aircraft fire, which shot down one Australian Kittyhawk, although the pilot, aided by Arabs, succeeded in escaping.

Meanwhile XXX British Corps had made no headway against the main Mareth defences, and in the face of spirited counter-attacks had to abandon its bridgehead. Montgomery accordingly decided to reinforce his out-flanking movement and force a way between the Djebels Melab and Tébaga. Throughout 24th and 25th March while tanks threaded their

¹ General Leclerc was a *nom de guerre*. Later he attached "Leclerc" to his family name, becoming Général D'Armée J. P. Leclerc de Hautecloque. Killed, air accident, 28 Nov 1947.

² There were now 4 fighter wings with Desert Air Force and Australian contribution became proportionately smaller.

way through the difficult tracks of the Matmata Hills, and while II American Corps renewed its offensive to preoccupy the *10th Panzer Division* east of Maknassy, Western Desert Air Force struck repeatedly at enemy forces south of El Hamma. The German Air Force made no appearance but five Kittyhawks were damaged by heavy ground fire and two were forced down, although both pilots were rescued by the New Zealanders. Squadron Leader Bartle who had assumed command of No. 450 only ten days before probably owed his escape to another Kittyhawk which continued to attack enemy machine-gunners attempting to fire at him until he was picked up.

Despite all these efforts, enemy concentrations were strong enough to make the passage between the Djebels most difficult, so it was decided to employ the entire resources of Western Desert Air Force in a series of concentrated low-flying attacks immediately before the Eighth Army made its attempt to break through the defile. The usual pattern of air interdiction began on 25th March with daylight attacks against Axis airfields, followed that night by a maximum bomb load on enemy positions. Next day while North-West African Air Force resumed attacks on the airfields, Western Desert Air Force flew 412 sorties in just over two hours during the afternoon. The ground attack which followed swept through the dazed troops holding the defile and by dawn on 27th March the 1st Armoured Division was within a few miles of El Hamma. In the success of this manoeuvre the R.A.A.F. played far less than its usual part, contributing only seventeen sorties, because serviceability had suffered as a result of the sustained low-flying attacks which the two squadrons had maintained on previous days. During the three succeeding days, while the enemy extricated his outflanked troops from the Mareth line and retired to the Wadi Akarit, Nos. 3 and 450 Squadrons became more active, and on 29th March made eighty-three low-level attacks against vehicles moving north from Gabes. Thereafter targets became more widely dispersed and the Australians were released from operations to move forward to El Hamma and prepare for the next battle.

As at Medenine, No. 239 Wing found itself on 3rd April at El Hamma within twelve miles of enemy positions and suffered discomfort from shell fire and the presence at night of enemy aircraft which dropped flares but no bombs. Shell fire destroyed one Kittyhawk and wounded three men of No. 450 Squadron which withdrew again on 5th April to Medenine. The Australians did not operate during this phase but their inaction was not shared by the rest of Western Desert Air Force which maintained a preliminary offensive against the Wadi Akarit positions, while on 4th-5th April a force of night bombers raided Sfax, the main enemy supply centre. Shortly before dawn on the 6th the Eighth Army began its assault on the strong natural positions manned by a determined enemy. Air assistance was given at first light with fighter and fighter-bomber reconnaissances followed by a shuttle service of bombers against German forces grouping to counter-attack. The Australian squadrons were airborne nine times, mainly on small armed reconnaissances aggregating seventy-five flights.

Only one fighter-bomber attack resulted when towards dusk a group of vehicles was attacked north of Cekhira. A single Mc-202 encountered on these patrols was promptly shot down but one Kittyhawk was also hit by anti-aircraft fire and crashed in flames. By dusk, pressure both against the Akarit line and by II Corps in the El Guettar sector was heavy enough to influence the Italian *First Army's* decision to retire.

The forcing of the Wadi Akarit positions unhinged the entire enemy southern front. For the next few days Axis troops fell back rapidly, harassed at night by medium and light bombers which struck at vital points on the line of retreat, and during the day by light bombers, fighter-bombers and fighters which hampered all road movements. Pichon fell on 8th April, Kairouan and Sfax two days later, and Sousse on 12th April, by which time with Axis forces behind a new defence line hinging on Enfidaville, the whole Tunisian plain had been won by Allied armies thrusting from the south, south-east and east. During the first two days of this advance R.A.A.F. Kittyhawks flew 149 sorties, either with bombs or as cover to other units, against vehicles heading north from Gafsa. Thereafter this effort declined as the enemy drew out of range and many of the eighty-four flights between 8th and 11th April were abortive. Not once during this period was a hostile aircraft sighted. Operations ceased on 11th April and three days later No. 239 Wing advanced to El Djem, only to move again on 18th April to an airfield ten miles from Kairouan.

During informal discussions at the Casablanca conference in January 1943 a provisional date for the expulsion of Axis forces from North Africa had been set as 15th May. This was to permit Eisenhower's planning staff (Force 141) to estimate the many requirements of, and to assemble the forces for the approved invasion of Sicily which was itself tentatively scheduled for July. On 12th April the enemy line in Tunisia ran from Enfidaville to the Djebels Fkirine and Mansour, then north to the coast, constituting a compact, easily-defensible area, with the supply bastions of Bizerta and Tunis in the rear of this quadrilateral. The surrender of the Tunisian plain, however, now gave the Allies full opportunity to exploit their superiority. The limited range of fighter aircraft had previously confined the application of air power to relatively small areas at any one time, but now from Malta, Algeria and Tunisia both fighters and bombers could range over all the remaining battlefield and its adjacent seas. One of the first fruits of this new situation came in the speedy preparation of Sousse as a base for motor torpedo boats to operate under the very eyes of the enemy. Air power, too, though support was always available for land operations, could on occasions be primarily devoted to severing all Arnim's communications with Italy and Sicily.

One of the most spectacular series of operations was designed to disrupt Axis air-transport facilities, which had once more become of paramount importance to the *Army Group of Tunis*. Towards the end of March the daily average of supply flights between Sicily and Tunisia rose sharply with a peak daily total of 143 sorties on 26th March. On 5th April bombers from North-West African Strategic Air Force and

North-West African Tactical Air Force began to attack the main air terminals of this route, and on 13th April Western Desert Air Force also joined in the task. Meanwhile fighter aircraft swept the air routes and in three terrific clashes on 18th, 19th and 22nd April claimed the destruction of 120 Ju-52 or Me-323 transport aircraft, leaving the beaches and sea around Cape Bon littered with wreckage. After this date air supply was attempted only on a limited scale and by night only. There were only some fifty R.A.A.F. men who took part in these bombing and interception flights which gave the *coup de grace* to the enemy air transport system and their contribution is quite indistinguishable from that of the force as a whole.³

A new campaign was begun against seaborne supplies to Tunisia, which were now mostly run across in small ships using the short route from Sicily. Although No. 458 Squadron flew eighty-five night searches during April, their Wellingtons made only one attack—to sink *Fabiano*⁴ (2,943 tons) off Cape Gallo on 11th April. The torpedo bombers were generally unable to locate vessels in time to attack them before they had passed into the area patrolled by North-West African Air Force. Consequently No. 458 increasingly substituted bombs for torpedoes and made night attacks against minor harbours on the southern coast of Sicily. Palermo and Messina were battered by Liberators from the Ninth Air Force which also on 26th April attacked Bari which was a major base for German transport aircraft.⁵ From Blida No. 14 Squadron maintained regular armed-reconnaissance patrols over the seaward approaches to Tunisia. Even the Kittyhawks of No. 239 Wing took part and between 16th April and 9th May the R.A.A.F. squadrons flew 840 sorties over the Gulf of Tunis. These fighter-bomber formations employed two or more squadrons, one squadron acting as top cover while each remaining aircraft carried a 500-lb bomb, which was released at between 1,000 and 3,000 feet after diving from 6,000 or 10,000 feet, the height in each case being determined by anti-aircraft opposition. At first these speculative sweeps brought little result, but after 25th April, when the enemy was trying to send in supplies by

³ The German Air Historical Branch gives an average rate of 56 flights each day in Apr and up to 12 May. During this time 8,000 men and 5,200 tons of arms and equipment were safely carried over to Tunisia.

Kesselring states that "18 and 21 April were black days for the air supply service since on these two days 50 Ju-52's and 27 Me-323's were shot down just outside the Gulf of Tunis. Actually in view of the experience of the preceding weeks these losses could have been avoided. I had nevertheless to draw the obvious conclusion that future flights should only be made at night; it was unavoidable that this further detracted from the efficiency of the supply services".

Kesselring's figures accord fairly well with Allied claims; he should have a vivid memory of such catastrophic losses—but he was writing long after the event and may not therefore be entirely reliable. Other figures extracted from German records merely show 149 transport aircraft lost by Allied action, 17 through other causes and 24 damaged in this area during the period 5 Apr-12 May 1943. Of these only 51 destroyed and 8 damaged are recorded between 18-22 Apr with no loss at all shown on the 19th when one of the main battles ensued.

⁴ *Fabiano* was the ex-French *Mayenne*.

⁵ Sixty-two Liberators attacked Bari as part of the campaign against the aerial shuttle service.

On this occasion German records seem to imply losses in excess of Allied claims possibly because the airfield was crowded with intended replacement aircraft and also some withdrawn from Tunisia. No transport aircraft were lost but 44 fighters, 40 fighter-bombers, 16 dive bombers and 10 other aircraft were destroyed and 43 of various types damaged.

Craven and Cate, *The Army Air Forces in World War II*, Vol II, p. 184, gives the claim as "an estimated 27 aircraft".

all the small vessels it could commandeer, interceptions occurred almost daily. On 26th April two direct hits and some near misses were scored on three ships near Zembra Island and four days later in the same locality a stationary ship was set on fire. In subsequent attacks enemy vessels usually resorted to violent evasive measures on the approach of the fighter-bombers which continued to blockade the beaches and small ports of the Cape Bon peninsula in May. Opposition to these anti-shipping sweeps was slight and the Australians saw enemy aircraft on six occasions only, and then in small formations which were easily driven off by Kittyhawk or Spitfire top cover. The sole casualty during this period was Flying Officer Kierath⁶ who was shot down by gun fire and captured on 23rd April.

While No. 239 Wing was thus engaged over the sea No. 205 Group was again placed temporarily at the disposal of Western Desert Air Force and moved up to Kairouan. From this base heavy attacks were made against remaining Axis airfields in northern Tunisia, against unloading ports and against enemy battle positions, when on 19th-20th April the Eighth Army began a limited offensive against the Enfidaville line. No. 462, still a very mixed unit,⁷ engaged in similar duties from Gardabia. Main whenever aircraft were available, because a shortage of spares was forcing a considerable degree of cannibalisation and eventually 60 per cent of the aircraft were sent to No. 61 Rear Servicing Unit to await new engines. Light bombers, protected when necessary by Spitfires in daylight harried the short-range targets almost at will. Approximately one hundred Australians with R.A.F. units assisted with this hail of bombs on the eastern sector, while American aircraft attacked western objectives and also struck hard at ports in Sicily and Italy. Australian effort was comparatively small and as before cannot be separated from that of the force as a whole. Successful and lightly opposed as were some of these raids, the airmen still had many hazards to face. In a typical instance on 6th May a Halifax of No. 462, bound for a target in Tunisia was forced down in a rough sea because of engine trouble. Ten and a half days later the crew drifted ashore between Tripoli and Homs. Sergeant Curnow,⁸ one of the first flight engineers trained in the Middle East, had struggled unavailingly in the air to keep the engines running. During the long agony in the dinghy he played a leading part in rallying the spirits and efforts of his comrades as they lay under a blistering sun and rationed to one-seventh of a pint of water each day.

⁶ F-Lt R. V. Kierath, 402364. 33 Sqn RAF, 450 Sqn. Bank clerk; of Narromine, NSW; b. Narromine, 20 Feb 1915. Murdered while prisoner of war 25 Mar 1944. (One of the 50 air force officers murdered after the mass escape from *Stalag Luft III*.)

⁷ The operational record book frankly and feelingly states: "There are approximately 120 RAAF personnel. Thus in theory the squadron is Australian but in fact it is not. Only 8 of the aircrew are Australian. This has led to quite a lot of friction between the two parties. The Australians say it is an RAAF squadron—'Why isn't everyone on it Australian?'. The RAF feel very much the fact that although they are responsible for the operational success of the squadron yet it gets its credit as an RAAF squadron. But the major trouble is the definite difference of skill as tradesmen on Halifax aircraft . . . It is definitely a matter that should be settled quickly one way or another as all personnel concerned are rather unsettled by the constant coming and going of their fellows."

⁸ F-Lt C. D. Curnow, DFM, 16655. 450, 462 and 102 Sqn. Electrical fitter; of Kalgoorlie, WA; b. Kalgoorlie, 29 Sep 1919.

The Allied air offensive against landing grounds and the incessant offensive patrols against shipping had the further result of driving enemy fighters back to bases in Sicily from where they could not intervene in the land fighting. Air supremacy over Tunisia then gave immediate benefits to Eighteenth Army Group. After a decision to transfer the main weight of attack from the Eighth Army front to that of the First Army, the necessary regrouping was effected without any interference or discovery by enemy reconnaissance. Tactical surprise was virtually certain for the British offensive on 6th May along the Medjez el Bab-Tunis road. No. 239 Wing was called on for close support and in particular to harass columns falling back from Tebourba towards Tunis. The R.A.A.F. Kittyhawks located one group of 100 vehicles and attacked, but two formations of light bombers arrived at the same time, and the presence of the fighter-bombers was almost superfluous.

On 7th May Tunis was captured and Bizerta surrounded. Without these supply ports the enemy power to resist was atrophied. For five days Allied aircraft bombed and strafed the demoralised Axis troops who were left without even the semblance of an air arm. Kittyhawk patrols joined in this general attack on enemy pockets of resistance but the Australians flew only 131 sorties. German forces north of Tunis surrendered on 9th May, the Italian *First Army* cut off near Zaghuan on the 12th and troops in the Cape Bon peninsula on the 13th. Just as at Dunkirk the Royal Air Force by keeping the air clear and the sea lanes open had played a prominent part in aiding the evacuation of Allied troops, so now domination of the central Mediterranean skies, in conjunction with light naval forces patrolling the area under their aegis, prevented any escape for the trapped Axis armies. Repeatedly Rommel had extricated the cream of his army from every hard-fought battle of his long retreat, but now the way was effectively blocked. Rommel himself had departed five weeks before the final debacle, but Arnim and Messe surrendered with over 250,000 men.

While planning the great amphibious operation which culminated in the surrender in Tunis, it had become obvious that Coastal Command had a vital preliminary role, if surprise was to be achieved. The expedition against Casablanca would proceed from United States ports, but seven large troop convoys and a naval force were to sail from Britain to Oran and Algiers. The undetected passage of these convoys through three danger areas—(1) from the Clyde assembly areas through the Bay of Biscay, flanked by U-boat bases and traversed by outgoing and homecoming U-boats as well as reconnaissance aircraft; (2) the limited approaches to the focal area of Gibraltar; (3) the western Mediterranean, heavily policed by U-boats—would entail a large redistribution of resources at the very time when current operational requirements were taxing Coastal Command to the utmost. Admiral Doenitz had ordered the bulk of his U-boats to leave American waters and to resume convoy attacks in mid-

Atlantic. In August the German Metox search-receiver was installed in U-boats which consequently had a high degree of protection against radar sets then employed by Coastal Command,⁹ and they began to move across the oceans with greater freedom. Therefore, on the assumption that from packs at sea or flotillas in the Biscay ports, Doenitz could assemble up to fifty U-boats against the expedition within ten days and a further seventy-five within the succeeding fortnight, air patrols had the onerous responsibility of ensuring that no convoy should be reported until the result of the whole operation could no longer be jeopardised.

It will be recalled that since mid-1941 the principle of convoy escort in the Atlantic had been that only those merchant convoys actually in imminent danger of attack should receive close air escort. Troop convoys, however, were of special importance and were not subject to this limitation, and it was intended that at least one aircraft should be with each outward-bound convoy throughout the hours of daylight. The responsibility for convoys from the United Kingdom rested initially with No. 15 Group and then with No. 19 as far south as latitude 43 degrees north, when air escort from Gibraltar would be provided on a similar scale.

Accordingly Nos. 15 and 19 Groups were ordered to have all squadrons at maximum readiness from 18th October. This was by no means easy to accomplish because not only was the command at last receiving new aircraft so that several units were unavoidably out of the line, but it had also during the preceding three months of summer conducted a very high level of operations. A further factor was a drive then in progress to strengthen Bomber Command in maintenance personnel at the expense of Coastal Command. However, although a detachment of Liberators from No. 120 Squadron had to be sent to Iceland to give warning of enemy surface raiders likely to interfere with these special convoys, the situation could be met by denuding other areas. Nos. 320 (Hudson) and 415 (Hampden) Squadrons were temporarily transferred from No. 16 to No. 19 Group. To compensate for the absence of several units then re-arming on long-range aircraft, a detachment of United States Liberators and two and a half squadrons from Bomber Command were stationed in south-west England to be used for daylight patrols if any emergency arose. Gibraltar was reinforced by No. 210 Squadron whose Catalinas were temporarily withdrawn from the Russian convoy route, and by one flight of No. 235 Squadron (Beaufighters), while the resident squadrons—No. 202 (Catalinas) and No. 233 (Hudsons)—were built up far beyond their normal establishment.¹ In north-east Britain No. 18 Group, despite the loss of three Hudson squadrons for inclusion in Eastern Air Com-

⁹ Long-range ASV in use during 1942 was of 1.5-metre wavelength. As with most electronic devices once the wavelength had been determined it was fairly simple to plan a counter-measure. As will be seen the immediate Allied move was to get "centimetre radar" (first 10-cm and then 3-cm wavelength) into use to profit from any period during which the enemy might fail to recognise or counter it. English production of 10-cm radar was almost entirely pledged to H2S, the Bomber Cd equivalent. The British magnetron valve on which this apparatus depended had been made available to the USA where similar equipment was being manufactured in much larger numbers.

¹ 202 Sqn operated 18 Catalinas, in 10 of which Australians flew.

mand,² was to share with the Liberators based in Iceland, a system of patrols to prevent any German naval units from breaking out into the Atlantic.

To assist with this emergency reinforcement plan, No. 461 Squadron R.A.A.F. was temporarily allocated for transport duties during October 1942. Seven transit flights were made to ferry the ground staff of No. 210 Squadron and a variety of radar and other technical equipment to Gibraltar. The preliminary air and naval preparations and the mounting activity at this base were undoubtedly reported by observers in Spain, but the enemy was left in considerable doubt whether they heralded an attempt to relieve Malta, a landing in Tripolitania, an attack on Dakar, or as they did, the invasion of Morocco and Algeria. Admiral Doenitz himself opposed any diminution of his forces engaged in mid-Atlantic to guard against all these threats, and only reluctantly established an extended line of U-boats in the eastern Atlantic, well out of aircraft range from Britain and Gibraltar, in order to cover Dakar.³

In the event the British defensive arrangements proved adequate when the first TORCH⁴ convoys sailed from Britain on 19th, 22nd and 23rd October. By the end of the month all seven were at sea, and as planned were successively shepherded by aircraft from Nos. 15 and 19 Groups to latitude 43 degrees north when they came under escort from the Catalinas. The first troop convoys suffered no attack and passed through the Strait of Gibraltar during hours of darkness on 5th November. Nightly thereafter other convoys and naval squadrons slipped through to join them until some 800 ships were concentrated in the western Mediterranean. Every possible aircraft was flown to their support for while the dangers of premature discovery had been averted there remained imminent danger of attack. German and Italian submarines began to move towards this area where in three weeks between 2nd and 23rd November aircraft sighted U-boats 110 times and attacked on sixty-four occasions. In these circumstances the value of air protection was immense for not one ship in all the assault convoys had been lost to enemy action when they began to unload troops and equipment near Oran and Algiers during the night of 7th-8th November.

Tactical surprise was complete.⁵ While Hudsons dropped leaflets on Oran, Casablanca and Algiers urging Frenchmen to rally to the Allied cause, a hazardous Crossover patrol was maintained by No. 202 Squadron

² Eastern Air Cd consisted principally of fighters and general-reconnaissance aircraft: to support the operations at Algiers and a possible advance in Tunisia. The American landings at Casablanca and Oran were similarly allotted a much larger force—the Twelfth USAF.

³ Doenitz considered the U-boat a war-winning weapon, not to be misemployed by the General Staff on defensive or alternative duties. Compare Air Chief Marshal Harris' views on misemployment of Bomber Cd.

⁴ Committees and code names played a great part in the war. Often code names (like H2S) were merely puzzling but for this first great amphibious venture a symbolic rallying cry was chosen. The torch of liberation was to be lit in North Africa and its rays to rekindle hope for the occupied countries of Europe.

⁵ See *Ciano's Diary*, 7, 8 and 9 Nov 1942, and "Battle for Tunis", Air Historical Branch (Air Ministry) Translation No. VII/25. It appears that Mussolini and the Italian General Staff correctly gauged the Allied intentions, but were overborne by the Germans. However, Adm Maugeri, who was chief of Italian naval Intelligence at this time, later wrote in *From the Ashes of Disgrace* that the Italian navy, at least, was not aware of Allied intentions in advance.

in the Gulf of Lyons to report any sortie of the French fleet based at Toulon. Aircraft were still required for convoy protection, because supply convoys were already at sea, but as many as possible were sent to patrol off the invasion beaches. One Australian Catalina pilot briefed to be at Algiers at dawn on 8th November saw gun fire and explosions at Oran on his outward flight but found the situation relatively quiet at Algiers. As day broke the convoys were seen lying off three beaches, quietly and efficiently discharging their troops and equipment into landing barges. A black trail of men and vehicles led from the beaches up over the low hills which hid the city. No enemy aircraft were seen and the day wore on in uneventful patrolling with only a lazy smoke pall rising from the southern end of Algiers dockyard where fires had been caused by naval shells. After eight hours the Catalina made a low-level approach to photograph the town but was driven off by two batteries which had not yet



surrendered. Conditions were not so favourable at Casablanca where considerable French opposition was met and four out of five Hudsons of No. 233 Squadron were shot down. Within a few days French authorities in both Algeria and Morocco accepted the Allied terms and the great enterprise safely passed through its most critical stage.

While units of General Anderson's⁶ First Army attempted to race forward to prevent any Axis occupation of Tunisia, Eastern Air Command squadrons flew from Gibraltar to North African airfields. Hudsons of Nos. 500 and 608 Squadrons joined effectively in the anti-U-boat struggle, exceedingly bitter now that the U-boats knew exactly where Allied ship-

⁶ Lt-Gen Sir Kenneth Anderson, KCB, MC. Comd 11 Bde at Dunkirk 1940; GOC First Army in N Af 1942-43; GOC-in-C E Africa Cd 1945-46. Governor of Gibraltar since 1947. Regular soldier; of Dun Eaglais, Scotland; b. 25 Dec 1891.

ping must congregate. Although serious losses of shipping occurred during the rest of the month, the available U-boats were harried and damaged until only one German and a few Italian submarines were still operationally fit in the western Mediterranean. Enemy aircraft from Sicily also attacked supply convoys with success, as, owing to lack of suitable airfields, fighter protection could not at first be given over Bone and Bougie. Few R.A.A.F. men took part in these operations of Eastern Air Command. The Catalinas had quickly returned to the task of escorting the slow supply convoys, generally composed of large heterogeneous collections of ships, some very antiquated and especially in need of air cover because of the prevailing lack of naval ships. These duties continued during December and were remarkably successful by day, although Axis submarines began to achieve some successes at night on both sides of the Strait of Gibraltar. To combat this, No. 179 (Leigh-light Wellington) Squadron R.A.F. was sent to Gibraltar and made half the forty-eight sightings of U-boats, and sixteen out of nineteen attacks which resulted in that area during December. Flying Officer Gordon-Glassford⁷ attacked a fully-surfaced U-boat near Oran at 8.20 p.m. on 7th December and another farther east at 9.50 p.m. on 12th December. Sergeant Woolford⁸ of No. 233 Squadron also made one of the most promising daylight attacks of the month at 3.40 p.m. on 14th December when he damaged a U-boat north-west of Algiers.

⁷ F-O T. H. Gordon-Glassford, 402658, 612 and 179 Sqns RAF. Clerk; of Cremorne, NSW; b. Melbourne, 31 Jul 1915. Killed in action 21 Jan 1943.

⁸ F-Lt R. G. Woolford, 401180, 279 and 233 Sqns RAF. Law clerk; of Ashburton, Vic; b. Melbourne, 7 Dec 1911.

CHAPTER 16

THE CRISIS IN THE ATLANTIC

THE liberation of French North Africa had successfully been accomplished and the forces there reinforced and supplied only at the cost of leaving other areas very lightly defended. Doenitz had resumed mass attacks against Atlantic convoys in August 1942 in areas out of range of land-based aircraft. A patrol line of twenty-five U-boats each twenty miles apart was strung across the probable convoy tracks, and, as one of these was almost certain to make contact, it could then shadow and home the whole force for a concerted attack. A supplementary campaign near the Cape of Good Hope sank many independently-routed ships, but it was in mid-Atlantic that the main attempt to cut Allied communications was staged. Over 1,600,000 tons of shipping were sunk in all areas during the last quarter of 1942; for all the brilliance of the expedition to North Africa, November was in this respect the worst month of the war.¹ Already in October the few available long-range Liberators of Coastal Command were giving what cover they could but, although sometimes the enemy patrol U-boats were forced out of a convoy's path, this could by no means always be assured.

The convoy system in the North Atlantic against which the enemy now waged his major campaign was based on a regular cycle of movements. Once a week, fast convoys with a mean speed of advance of nine knots sailed from Halifax, Nova Scotia, and were designated HX with consecutive identifying numbers. At the same interval but on different days SC convoys composed of ships able to maintain an advance of only 6½ knots sailed from Sydney, Nova Scotia. The same types of convoy making the westward crossing were known as ON- and ONS- respectively. Originally American naval forces had taken a large share in escorting these convoys but in the latter half of 1942 responsibility for escort duty throughout the route rested with the Royal Navy and the Royal Canadian Navy.

For simplicity of handling ships engaged on these duties the route was divided into three main areas. Eight escort units composed of destroyers, corvettes and escort trawlers conducted a shuttle service between Cape Cod and longitude 52 degrees west. Approximately a dozen stronger groups of destroyers and corvettes operated between 52 and 22 degrees west. East of 22 degrees west other escorts took over but these were frequently reinforced or covered by the mid-ocean escorts which refuelled alternatively in Northern Ireland and in Newfoundland. Land-based air protection on these routes was provided throughout (if somewhat thinly) the eastern portion by American and Canadian squadrons; very sparsely in the mid-ocean section by any long-range planes which could be brought

¹ S. E. Morison, *History of United States Naval Operations in World War II*, Vol. I (1948), Appendix I, pp. 410-4 gives a detailed summary of shipping losses in the Atlantic between Jan 1942 and May 1943.

to bear from Newfoundland, Iceland and Northern Ireland, and fairly effectively in the eastern part. The theoretic range of escort during the latter part of 1942 increased to approximately 500 miles east of Newfoundland, 500 miles south of Iceland and 700 miles west of the British Isles but this in practice could rarely be achieved and in any case left a large area in mid-ocean which could not be covered at all.

Faced with the tremendous effort necessary to ensure the safety of TORCH convoys, Coastal Command found it extremely difficult to influence the struggle along the Atlantic convoy routes. Most of its aircraft had insufficient range to reach even the fringe of the danger area and so could only be used in the Bay or at Gibraltar. However, in November Coastal Command began modifying three squadrons of Liberators by adding extra fuel tanks and eliminating equipment not required for operations in the North Atlantic, so that these aircraft would have a theoretic range of 2,300 nautical miles. When these aircraft were ready for action it was proposed that No. 120 Squadron from Ballykelly in Northern Ireland, No. 86 from Iceland and No. 206 from Newfoundland would be able to reach any very seriously endangered convoy. Airfields in Greenland were also considered but rejected as they were fit for emergency use only. Air counter-measures to the new German offensive thus came slowly and an outstanding success for aircraft did not come until the second week of December with the dispersal of an unusually large and determined U-boat pack south of Iceland, which resulted in the passing of two important convoys (HX-217 and SC-111) from America to Britain. Of a total of 70 ships only 2 were sunk, but 27 U-boats were sighted and of these 16 were attacked and one was destroyed.² The foremost part taken by any of the Australians flying from Iceland was by Pilot Officer Fraser³ of No. 120 Squadron. During the afternoon of 12th December he sighted two U-boats near the slow convoy, SC-111, one fully surfaced, but the other trimmed down so that the conning tower only broke the surface. He immediately attacked the first target and then, as both had dived, he remained patrolling for an hour to keep them pinned down while the convoy cleared the area.

While realising that as much air protection as possible must be given in the North Atlantic, influential opinion in both the Admiralty and the Air Ministry still considered the Bay of Biscay was the key to all U-boat operations. Accordingly in November a special sub-committee of the War Cabinet was evoked "to give the same impulse to anti-U-boat warfare in the Bay of Biscay as had been applied to the Battle of the Atlantic and night anti-aircraft defence". Two plans emerged rapidly from early meetings of the committee. Firstly an Admiralty proposal to bomb the Biscay ports was adopted despite the opposition of the British Foreign Office and

² A U-boat was also sunk on 10 Dec by a Liberator of US Navy's VP-84 (i.e. 84 (Patrol) Sqn). Of the 16 attacks only 10 were with depth-charges, the others coming as a result of second or even third sightings during a single patrol, when the main armament had been expended and only cannon or machine-gun attack was possible.

³ F-Lt A. W. Fraser, DFC, 404063. 120 and 206 Sqns RAF. Station hand; of Innisfail, Qld; b. Herberton, Qld, 7 May 1915. Killed in aircraft accident 4 Jul 1944.

the Air Ministry, and secondly an urgent appeal was made to President Roosevelt for long-range aircraft fitted with centimetre radar.⁴ Neither of these expedients brought immediate results, for although U-boat bases were bombed the attack was at least a year too late to affect the submarines or their maintenance facilities,⁵ which were by this time housed in immensely strong shelters constructed by the Todt organisation; the long-range aircraft could not be made available at that time.

⁴ The full text of Mr Churchill's message to Mr Harry Hopkins was:

"Could you put the following before the President on a suitable occasion. Begins:

One of the most potent weapons for hunting the U-boat and protecting our convoys is the long-range aircraft fitted with ASV equipment.

The German U-boats have recently been fitted with a device enabling them to listen to our 1½ metre ASV equipment and thus dive to safety before our aircraft can appear on the scene. As the result our day patrols in the Bay have become largely ineffective in bad weather and our night patrols, with searchlight aircraft, have been rendered almost entirely useless. Sightings of U-boats have accordingly declined very sharply from 120 in September to 57 in October. No improvement can be expected until aircraft fitted with a type of ASV to which they cannot at present listen called "centimetre ASV" become available.

One of the main objects of patrolling the Bay is to attack U-boats in transit to and from the American Atlantic seaboard. This region is doubly urgent now so many American Torch convoys pass in the vicinity. We can deal with the inner zone of the Bay of Biscay by modifying and diverting to our Wellingtons a form of centimetre ASV which has been developed as a target location device for our heavy bombers. A more difficult situation arises in the outer zone of the Bay where aircraft of longer range fitted with centimetre ASV are essential.

The very heavy sinkings in Mid Atlantic have forced us to convert our own Liberators for work in this area. This leaves us with no aircraft with adequate range for the outer zone of the Bay, unless we make a further diversion from the small force of long-range bombers responsible for the air offensive against Germany. Even if this diversion were made a considerable time would necessarily elapse before the essential equipment could be modified and installed.

I am most reluctant to reduce the weight of bombs we are able to drop on Germany as I believe it is of great importance that this offensive should be maintained and developed to the utmost of our ability throughout the winter months. I would therefore ask you Mr President to consider the immediate allocation of some 30 Liberators with centimetre ASV equipment from the supplies which I understand are now available in the United States. These aircraft would be put to work immediately, in an area where they would make a direct contribution to the American war effort." Ends.

Mr Hopkins replied:

"Reference your cablegram No. 202 November 20 1942. The gravity of the submarine menace in European waters is fully appreciated here. Acute shortages of both airplanes and equipment preclude permanent assignment to U.K. for Royal Air Force operation of 30 Liberators provided with centimetre ASV. In an endeavour to improve antisubmarine operations in European waters a total of 21 Liberators provided with centimetre ASV equipment and accompanied by necessary ground echelons are being sent to Europe to operate under the control of General Eisenhower. Nine of these Liberators are either in England or will arrive shortly. Four others are practically ready to depart. The remainder will be ready for departure by December 15th. It is hoped that your representatives can reach an agreement with General Eisenhower which will result in the employment of these aircraft in the manner best suited to further our common interests. Since these 21 Liberators were withdrawn from antisubmarine defences in Atlantic and Pacific waters of the Western Hemisphere where they may be required urgently later, the assignment to the European must necessarily be temporary and subject to change to meet future developments. As a measure of permanent assistance to the RAF the Army will *if desired* provide centimetre ASV equipment for the four Liberators which are now being assigned to UK under the terms of the Arnold-Towers-Slessor Agreement. In order that adequate arrangements for installation may be effected the Army requests that an early indication be given of your desire with reference to the 4 B-24s now being assigned to UK each month. If our effort to equip four B-24s per month with ASV equipment is accepted the Army urges that British personnel in appropriate numbers both operators and mechanics be sent to the United States at the earliest practicable date to become familiar with operating and maintenance details. It is regretted with the shortage of centimetre ASV equipment precludes a greater measure of assistance at this time."

⁵ It is interesting to note that Rear Adm Godt, who for the whole of the war was Doenitz' Chief of Staff in charge of U-boat operations wrote in an essay on "The War at Sea" during 1945:

"... A mystery it was and still remains, why the pens in the west of France, which were vital to the further prosecution of the U-boat war in 1943 or 1944 were never bombed during their vulnerable first stages of construction. For while during their erection in those harbours the danger from the air on the part of England was belittled by the G.A.F. because they claimed that air supremacy would remain with Germany, it would nevertheless have been possible to make highly destructive attacks on the unfinished pens at least from the beginning of 1941 onwards..."

Political factors, not least of which were possible effects on American public opinion, the French fleet and colonies, had a large part in previous rejections of this plan. Joubert, who could see little difference between German-occupied Boulogne and German-occupied St Nazaire, had been a consistent advocate of this course of action but by Dec 1942 the time was long past that it could be successful.

Meanwhile there was a dearth of incident in the Bay area proper, which, although it was a good augury for TORCH, gave little satisfaction to aircrew. At this time U-boats travelled on the surface in darkness as far as the 100-fathom line, relying on the German search-receiver to give warning of any approach of aircraft. Beyond this point they remained submerged as much as possible until reaching longitude 15 degrees west, when they were outside normal air patrols. In these circumstances Coastal Command operations failed to maintain the promise of earlier months. In October No. 461, primarily engaged in transport duties, flew only three Bay patrols, and No. 10 Squadron made only one abortive attack in forty-eight patrols. At 1.20 a.m. on 27th October Flying Officer Triggs made the only Leigh-light attack of the month and damaged a 517-ton U-boat with well-placed depth-charges.

During November No. 19 Group flew a new record of 10,500 hours but again very few attacks resulted. Neither of the Australian Sunderland squadrons sighted any U-boats in their seventy-eight patrols round the convoys for North Africa or in the Bay "probability areas". To break the existing deadlock between radar search and counter-measures, after 20th November the Australians were ordered to fly principally at night and to make some sorties at as high an altitude as possible, with radar sets full on to cause transmission echoes over a wide area, and thus to confuse U-boats as to the actual degree of danger in which they stood. These tactics were continued in December, but, having no oxygen apparatus, the Sunderlands could not go above 10,000 feet, their radar transmitters were of low power, and the complicated navigation required to "flood" specific areas of the Bay called for special aids not then available. The intention however, was to force U-boats to adopt even more cautious submerged passage, and in this respect give increased protection to Allied shipping in this area.⁶ Again no sightings were made by Nos. 10 or 461 which flew 316 and 302 hours respectively in predominantly bad weather. This disappointing campaign in the Bay was absorbing practically all the medium-range aircraft of Coastal Command, and further restricted effort in northern waters where little pressure could be applied to U-boats making their maiden trips from the Baltic to join the Atlantic fleet. The few Hampdens of No. 455 Squadron R.A.A.F., which had been left behind when the main body flew to Russia, were employed during October and November on anti-U-boat patrols from Sumburgh, but only one abortive attack resulted. The complete squadron came back into the line during December and made two attacks on shipping off the Norwegian coast, but the Hampdens were scarcely ideal aircraft for this task, and indeed two months earlier Coastal Command Headquarters had proposed that this squadron

⁶ German records give no indication that this attempt to introduce a flavour of electronic counter-measures had any success at this stage. The German Metox search-receiver installed in U-boats apparently gave full confidence to enemy crews until early in 1943; U-boat captains were not aware of any undue Coastal Command activity in the Bay and apparently continued to make passage with varying degrees of boldness—generally surfaced by night but some die hards also surfacing for part of the daylight hours. In Oct 94 U-boats made passage, in Nov 90, in Dec 107 and in Jan 89.

be withdrawn, so that its ground crews could be better used to reinforce ill-manned anti-U-boat squadrons.

Anti-shipping duties in the Bay of Biscay late in 1942 centred upon enemy blockade runners. On 2nd October, Flying Officer Dods⁷ of No. 461 attacked one west-bound merchant ship and next day, north of Cape Finisterre, Flight Lieutenants Pockley and Egerton, and Pilot Officer Beeton⁸ of No. 10 all bombed the motor vessel *Belgrano* (6,095 tons). This vessel then put into a Spanish port, but was again bombed by Flight Lieutenant Cooke on 11th October, a day of great activity when four ships were discovered by air patrols. Three made good their escape but on 12th October the tanker *Krossforn* (9,323 tons) was attacked by several aircraft including a Sunderland of No. 10 and returned to Nantes. Another three ships arrived from Japan early in November and at the same time two more attempted the outward passage. One of these, *Anneliese Essberger* (5,173 tons) was bombed by Flight Lieutenant Smith⁹ on 7th November. At the very end of the month, during one of the new night patrols, Egerton discovered yet another outward-bound vessel escorted by two torpedo boats and two other escort vessels. Accordingly Sunderlands were sent out armed with general-purpose bombs to attack this ship (identified as the Italian *Cortellazzo*, 5,292 tons). Beeton made a determined attack near Cape Finisterre just before dawn on 30th November, and a few hours afterwards Flying Officer White¹ bombed one of the torpedo boats.

Only nine anti-shipping sorties were flown during December and none of these discovered any new targets. Although it would appear at first sight that these anti-shipping attacks were achieving little in relation to the risks incurred by crews who had to make them in slow aircraft and with ill-suited weapons, in reality the highest importance was attached to this maintenance of pressure. It had already caused a re-distribution of German naval escort vessels which were needed throughout the long coastline from Finisterre to Narvik. Photographs taken on these patrols often enabled vessels to be identified and a description and orders for search broadcast to Allied fleets and air forces throughout the world. Refreshing proof of this came when both ships attacked by Australian Sunderlands during November later fell victims to surface warships.² These were the first blockade runners sunk since November 1941.

Enemy air opposition over the Bay of Biscay remained strong, and early in October R.A.A.F. Sunderlands were twice attacked by a Ju-88

⁷ F-Lt W. S. E. Dods, 403725. 10 and 461 Sqns. Accountant; of Brisbane; b. Brisbane, 22 Feb 1909. Killed in action 29 May 1943. Dods joined as an admin offr in 1939 and in Mar 1941, when a f-lt, joined aircrew, reverting to the ranks. Topping his course in Canada he was commissioned as p-o, Nov 1941. By Sep 1942 he was again a f-lt.

⁸ Sqn Ldr K. C. Beeton, DFC, 407162; 10 Sqn. Clerk; of Malvern, SA; b. Mt Lofty, SA, 11 Jan 1916.

⁹ Sqn Ldr E. C. Smith, DFC, 400297. 209, 225 and 228 Sqns RAF, 461 and 40 Sqns. Salesman; of Horsham, Vic; b. Horsham, 1 Dec 1915.

¹ Sqn Ldr H. D. White, 280848. 10 and 40 Sqns. Clerk; of Highgate, SA; b. Toowoomba, Qld, 17 Nov 1915.

² *Anneliese Essberger* scuttled herself in the S Atlantic when intercepted on 21 Nov and on 1 Dec *Cortellazzo* was similarly intercepted by British warships in the N Atlantic.

fighter which, however, was beaten off in both instances. Beaufighter patrols close to the French coast had some success in intercepting these enemy fighters and on 13th October Flight Sergeant Hammond of No. 248 Squadron shared in the destruction of a Ju-88 and also shot down an unidentified seaplane which exploded and crashed into the sea. Successes were not all one-sided, however, and the less well-armed Whitley squadrons suffered badly at this time. On 16th October Pilot Officer Brown of No. 51 Squadron, who had already in August beaten off one enemy attack, sent an urgent radio message that he was engaged in combat and nothing further was heard of his aircraft. Increased flying during November brought even more combats but the Australians were fortunate in flying most of their patrols unmolested. In all three combats forced on Sunderlands successful escapes were made into cloud. This was in accordance with current orders to crews to rate the safety of their aircraft of higher worth than even the most glorious fight against odds, because the Ju-88's now patrolled in groups of three or more. On 22nd November Warrant Officers Hammond and Mueller had a spirited but inconclusive engagement with enemy fighters and a week later Hammond with two other Beaufighters discovered six Ju-88's in pursuit of a Whitley west of Ushant. He attacked immediately and broke up the enemy formation. Five of the Ju-88's withdrew into cloud, but the sixth, badly holed in the starboard engine and wing by Hammond's cannon fire, was claimed as damaged. These patrols of No. 248 Squadron, principally a deterrent to enemy fighters, were increasingly valuable as visual reconnaissances in inshore waters and on 26th November Mueller had strafed an escort vessel. Australian interest in these Beaufighter sorties ended abruptly and tragically on 1st December when Hammond, Mueller and Sergeant Twigg³ failed to return from a dawn security patrol south of the Brest peninsula, in an area where FW-190's had begun to operate. Similar losses later in the month caused a partial withdrawal of the Beaufighters, and the anti-U-boat aircraft were again subjected to increased opposition from the Ju-88's which themselves now operated freely. Orders to avoid combat and poor weather conditions in December proved the best safeguards for Coastal Command aircraft and four times R.A.A.F. Sunderlands escaped into cloud without serious combat. The only real engagement occurred on 5th December when Flying Officer Steley⁴ was attacked near the Spanish coast first by two Ju-88's and then by an Me-110. Steley was forced to jettison his depth-charges, thus rendering his flight abortive, but he was then able to outmanoeuvre the Ju-88's and to damage the Me-110.

High-level decisions early in 1943 revealed the increasing emphasis which both the Allied and Axis Powers placed on the war at sea. Repulsed in Russia and North Africa, Germany saw in U-boat operations the means

³ F-Sgt G. E. Twigg, 411080; 248 Sqn RAF. Draftsman; of Rockhampton, Qld; b. Rockhampton, 14 Sep 1913. Killed in action 1 Dec 1942.

⁴ Sqn Ldr C. W. Steley, DFC, 404554. 10 and 461 Sqns; comd Survey Flight 1945. Chemist; of Ayr, Qld; b. Maryborough, Qld, 7 Jun 1921.

of cutting the Atlantic lifeline. Grand Admiral Raeder was replaced in January by Grand Admiral Doenitz, whose simple plan was to sink more Allied ships than could be built and thus prevent any offensive in western Europe. With enough U-boats to keep more than 100 constantly at sea,⁵ and now able to call on the full manpower of the German Navy, Doenitz intended by a bolder strategy to mount even larger-scale concerted attacks against Atlantic convoys. The Allies were equally aware that the tempo was quickening and that the critical phase of the U-boat war would not long be postponed. At the Casablanca conference, the Combined Chiefs of Staff laid down that in the coming year the defeat of the U-boat should be the first charge on the combined resources of the Allies. Invasion of the Continent could not be contemplated until very large numbers of American troops with full equipment could be transported to and maintained in the United Kingdom.

Violent and widespread gales during January 1943 prevented both sides from exerting their full forces. Neither U-boats nor aircraft accomplished much, although the new determination of U-boat packs was clearly shown when a convoy bound from Trinidad to Gibraltar was intercepted, and lost seven out of its nine tankers. Otherwise shipping losses for the month were low enough⁶ to give a false impression, but in all areas only twenty-three air attacks were made on U-boats and only one was sunk by this means. It was just as important to the Allies to sink more U-boats than were being commissioned as for the Axis to reduce our shipping pool but neither side made any headway. Weather conditions were the best protection for convoys although whenever possible they received air escort from Iceland. From this base Sergeant Turnbull⁷ of No. 269 made a promising attack on 18th January, but in this area there were as yet insufficient very-long-range aircraft of the Liberator and Fortress type to exercise effective police measures. Also in northern waters an attempt was made to restrict the number of U-boats entering the Atlantic but with little success. On 27th January, a Hampden of No. 455 Squadron made an opportunist attack on a U-boat encountered by chance during a shipping reconnaissance off Norway, but the torpedo was set too deep to strike the surfaced submarine.

In the Bay of Biscay both R.A.A.F. Sunderland squadrons were used extensively for "flooding operations", now employing a special 600-KW transmitter. Three degrees of latitude were covered each night, one aircraft to each degree square, while Leigh-light Wellingtons made a search in the same area at a lower altitude. Even in the worst weather of that severe winter an effort was made to fly these patrols and one Sunderland of No. 461 was lost on 21st January. It was hard to assess the value

⁵ On 24 Dec 1942 Doenitz reported that of a total of 382 U-boats, 63 were in operational areas, 47 en route to or from operational areas, 100 in flotilla ports, 119 undergoing trials or working up and 53 were employed only for training. To that date only 147 had been lost, an average of 3.8 per month. Losses during the last quarter of 1942 aggregated 33 but in only one month of the entire war (Nov 1942) had losses exceeded new building.

⁶ 197,000 GR Tons compared with 700,000 GRT in Nov 1942.

⁷ F-O J. A. Turnbull, DFM, 411465; 269 Sqn RAF. Grazier; of Glen Innes, NSW; b. Guy Fawkes, NSW, 29 Jan 1913.

of such flights, for although five of the six attacks in daylight did occur in areas searched immediately after night-flooding sorties, the German search-receiver still gave ample warning for U-boats to dive and avoid serious damage. Neither No. 10 nor No. 461 themselves made any sightings in sixty-six patrols and the only night attack in the Bay was made by Triggs of No. 172 on 3rd January. The Leigh-light Wellingtons of No. 179 Squadron at Gibraltar on varying dates sighted nine U-boats around supply convoys bound for North Africa, but in every instance the enemy was forewarned. On 9th January Gordon-Glassford made one of the best attacks in this area, but once again there was no evidence of success.

One benefit of the prevailing adverse weather was that it likewise severely restricted enemy air opposition to Biscay patrols, but the Australians considered this poor compensation for the general failure against the U-boats. For No. 10 the only highlight of a disappointing month came on 1st January when Beeton successfully located an inward-bound German blockade runner. He had been sent out in conditions of high wind, low cloud and driving rain in which the chances of interception were low. For eight hours, however, he conducted a meticulous and complicated patrol pattern and finally sighted *Rhakotis* (6,753 tons). He then found the cruiser *Scylla* which was also searching for this ship, and, by the expedient of laying a line of smoke floats, he led the warship to within 12 miles of *Rhakotis*, which was destroyed by gun fire. Of chief interest to No. 461 was the arrival on 14th January of Wing Commander Douglas of No. 10 as the squadron's new commanding officer. Air Marshal Williams had successfully requested that the Air Board review its original policy to segregate the two classes of its units serving overseas. Already on 23rd December 1942 Squadron Leader Wood had been posted to No. 461 as a flight commander. Early in February Flying Officer Long (armament officer), Pilot Officer Petherick⁸ (gunnery officer) and Flight Lieutenant Egerton, all with lengthy and outstanding experience with No. 10 also transferred to No. 461.

Bad weather continued during the early part of February but there was a quickening of tempo in the North Atlantic where twenty-seven ships were sunk compared with three in January. Two convoys in particular suffered heavily, each being attacked by approximately twenty U-boats which, by sheer weight of numbers, broke through the surface escort. Naval ships sank seven and air attacks sank four U-boats during these actions, however, and it appeared that with more aircraft even greater successes could be gained. When U-boats were themselves committed to an attack on convoys aircraft had the best chance to counter-attack and this was emphasised by the destruction of two more U-boats harrying a south-bound convoy off Portugal in mid-February. In all these actions

⁸ Sqn Ldr A. C. H. Petherick, 1108. 10 and 461 Sqns; RAAF Liaison Offr HQ Coastal Cd 1943-44; 298 Sqn RAAF. Regular airman; of Clayfield, Qld; b. Perth, WA, 28 Nov 1911.

Australians had little part, although Flight Sergeants Rowe⁹ and Woolford of No. 233 Squadron each attacked a U-boat in the southern area.

With the centre of operational gravity once more around convoys the policy of Bay patrols was reviewed. Manifestly they were producing few material results, although it was estimated that if pressure were relaxed in this area it would permit more U-boats to be in operational areas at any given time.

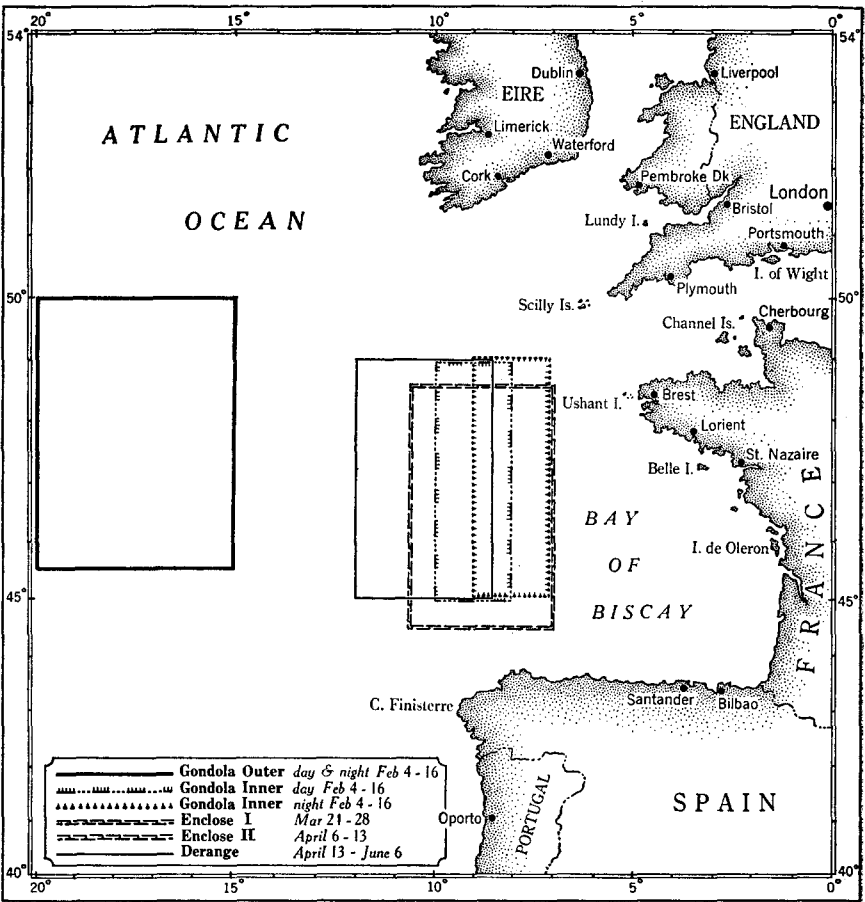
The new air officer commanding-in-chief Coastal Command, Air Chief Marshal Slessor,¹⁰ ordered the Operational Research Section to make a statistical analysis of patrols both in the Bay and around threatened convoys for the periods June 1942-February 1943. The criterion of value adopted was the ratio of sightings (and consequently opportunities of attack) to hours flown and this gave a figure of one U-boat sighted around a threatened convoy for every 29 hours on patrol, contrasted with one sighting every 164 hours on Bay patrols between June and September, falling away to one sighting every 312 hours from October to February when the enemy had full advantage from their Metox search-receiver. One of the main results was the proposal to concentrate the greatest practicable proportion of available resources on close cover of threatened convoys, the Bay patrols assuming the position of a residuary legatee. Absolute priority was given to the provision of very-long-range aircraft and at the same time a change was requested in the existing policy under which cover was automatically provided for certain convoys (principally troop convoys) whether threatened or not.

At the same time it was fully realised that there was a limit to which resources of Coastal Command could be re-aligned to reap mathematically higher benefits from escorting threatened convoys. Many aircraft were unsuitable and bases simply did not exist from which they could operate. Therefore there was no intention to abandon the Bay offensive but only a desire to find more suitable means of making an increasing weight of effort really effective there. The sector fan patrols which had at first seemed a great advance on the old Crossovers, had themselves fallen well out of favour and indeed the system of sending single aircraft or even a few in succession to "probability areas" was now stigmatised as a "find the lady" technique. Therefore, as an experiment, Operation "Gondola" was conducted as early as the period between 4th and 16th February. This plan envisaged intensive effort inside two broad areas running north and south in the Bay and thus almost at right angles to the route of U-boats making for or returning from the North Atlantic wolf pack area. An outer patrol was flown continuously west of 15 degrees west by Liberators and Catalinas, while an inner patrol, extending 120 miles east of longitude 10 degrees west, was flown by Sunderlands, Halifaxes and Whitleys, and at night by Leigh-light Wellingtons. The gap between the inner and outer patrols equalled three days submerged passage for a

⁹ F-Lt W. G. Rowe, 401540. 233 Sqn RAF, 11 Sqn. Salesman; of Melbourne; b. Gwalia, WA, 14 Aug 1913.

¹⁰ Air Chief Marshal Sir John Slessor, GCB, DSO, MC; RAF. AOC 5 Gp 1941-42; AOC-in-C Coastal Cd 1943-44; Dept C-in-C, MAAF 1944-45; b. India, 3 Jun 1897.

U-boat, and thus gave a second chance of intercepting most of the vessels which passed safely through the first zone.¹ This concentration in space had immediate results for, in 312 sorties, nineteen U-boats were sighted and eight attacked, practically all in the outer zone. The only attack in the inner area was made on 15th February by Wood of No. 461 against



Operations in the Bay of Biscay: February-June 1943.

a surfaced Italian submarine, but owing to a faulty distributor, the depth-charges fell in salvo and overshot. The other Sunderland patrols, however, had not been entirely uneventful for two days earlier Flight Lieutenant Walker² of the same squadron was intercepted firstly by two Ju-88's and then by two FW-190's and suffered repeated attacks and some damage from cannon fire before he escaped.

¹ This, however, was not the original reason which was to allow a safe area for Allied submarines on passage to the Mediterranean.
² Sqn Ldr C. B. Walker, DSO, 404610. 10 and 461 Sqn. Clerk; of Woollowin, Qld; b. Toowoomba, Qld, 25 Oct 1917.

One unsuccessful attack had been made by a Sunderland of No. 10 against a U-boat on 3rd February before Operation "Gondola" had begun, but the latter part of the month was again devoid of incident. The first U-boat sunk in this area since September 1942 (when the German search-receiver was installed in U-boats), however, had been sunk in the outer area of the "Gondola" operation, and shortly afterwards, on 19th February, a second success was achieved by a Leigh-light Wellington. On the basis of this experiment, plans were made for future operations, although it was appreciated that only with new centimetre radar would aircraft recover tactical advantage over U-boats making wary passage.

The real test of strength in the Atlantic came during March when wintry conditions gave way to three weeks of mild dry weather. The U-boat fleet, supported by large 1,600-ton "milch cow" supply submarines from which about ten U-boats could each draw forty tons of fuel and even torpedoes without returning to base, was ready for an all-out offensive at the very time when many Allied naval escort vessels were refitting after storm damage.³ Forty-one ships were sunk during the first ten days of the month and another forty-four during the succeeding ten days. No fewer than 57 of the total of 108 ships sunk during the whole month were in organised convoys. The magnitude of these losses inevitably raised the question whether the convoy system was any longer an effective means of defence against the pack tactics adopted by the U-boats, and a very real danger existed that Doenitz would succeed in his aim of severing the Atlantic supply routes. Nevertheless there was no practicable alternative to convoys⁴ and faith was pinned in increased sea and air defences including escort carriers. An Atlantic convoy conference held at Washington during the month made provision for the pooling and economical employment of all American, Canadian and British forces.

Coastal Command had not been idle, however, and an additional Liberator Squadron (No. 86) was moved to Iceland in time to support two large convoys routed close together during the third week of the month. During the night of 16th-17th March, outside normal aircraft range, thirteen ships were sunk by a tenacious enemy group totalling forty U-boats, but thereafter every available aircraft that could be spared joined in the defence. Thirty-two U-boats were sighted by patrolling aircraft and nineteen were attacked; on the night of 20th March, the enemy grip was broken and they were forced to abandon their attempts to close in on the convoys. Pilot Officer Burcher⁵ was the first Australian to attack. When he was escorting the convoys in mid-Atlantic early on 17th March, he forced one U-boat to dive and held it submerged for half an hour. He

³ Blockade runners and raiders were employed by the enemy to refuel and replenish U-boats especially in distant waters. For the Atlantic, where such surface ships were unlikely to escape detection for long, Doenitz had built a series of 1,600-ton U-boats which began operations in Mar 1942. Fuel, torpedoes, fresh water, tinned food and a doctor were carried. Their use added at least 14 days operational time to combat submarines.

⁴ Although losses were tragically high during this black month 330 ships safely made passage in trans-Atlantic convoys.

⁵ F-Lt C. W. Burcher, DFC, 411737; 86 Sqn RAF. Bank clerk; of Bellevue Hill, NSW; b. Mossiel, NSW, 14 May 1918.

returned to the convoy only to find a second surfaced U-boat which in its turn dived and was prevented from attaining a position suitable for attacking the convoy. Next morning while the ships were still 800 miles from Coastal Command bases, Fraser of No. 120 attacked another U-boat. By similar consistent counter-attacks the U-boat pack was split up and fell astern. After 20th March the enemy effort began to flag, partly from exhaustion after its tremendous exertions and successes, but partly because more and more air and naval craft were thrown in to defend the convoys. Only fifteen more ships were sunk during the last eleven days of the month. Burcher made yet another effective attack on 28th March and prevented a scouting U-boat from closing in on a convoy.

While this critical battle was raging on the Atlantic route, danger also threatened the North African supply convoys. Doenitz had successfully demanded German long-range air reconnaissance to aid U-boats in concentrating against these slow and tempting targets. The convoys were safely shepherded across the Bay of Biscay but were repeatedly attacked off Portugal and in the approaches to the Strait of Gibraltar. Again the presence of aircraft usually succeeded in driving off the enemy and Rowe of No. 233 damaged his second U-boat during an attack on 4th March. Little success was obtained in the Bay of Biscay, however, for although on 1st March Flying Officer Barson of No. 59 Squadron R.A.F. attacked an unwary U-boat in the lightly-patrolled waters to the west of Biscay, very few U-boats were seen early in the month on normal patrols. The Sunderlands were used extensively for escort to south-bound convoys which was accomplished without incident, but they also flew regularly in the middle Bay.

Wing Commander Hartnell⁶ arrived at Mount Batten on 9th March to replace Group Captain Alexander,⁷ promoted to command R.A.F. Station, Mount Batten. This was a step towards the national policy consistently advocated by the Australian Government.

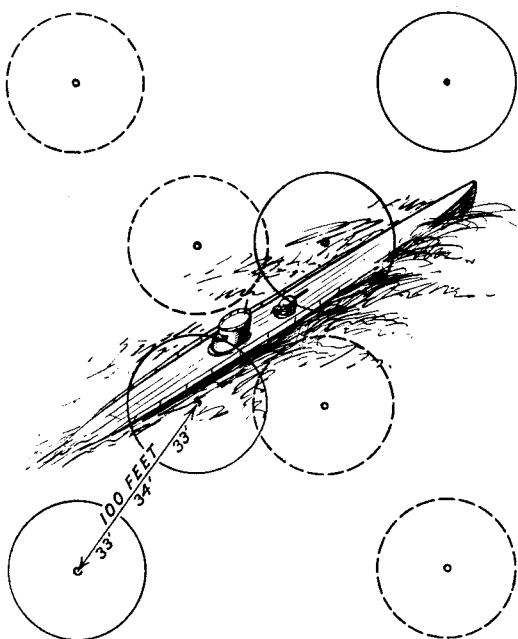
In mid-month all squadrons of No. 19 Group were ordered to prepare for one week's intensive flying, beginning on 21st March. This new experiment ("Enclose") profiting from the experience of "Gondola", aimed at distributing the flying effort of aircraft as evenly as possible over each period of twenty-four hours for seven days in an area bounded by parallels 44 degrees 30 minutes and 48 degrees 30 minutes north and the meridians 07 degrees and 10 degrees 30 minutes west. For this purpose radar-equipped aircraft were to fly at night and those not so equipped by day. No. 461, although its Sunderlands were fitted with radar sets, was held in reserve to replace any emergency withdrawals, or to reinforce the night effort in special circumstances. The patrols were duly flown and in 182 sorties twenty-seven U-boats were discovered, of which nine were found

⁶ Gp Capt G. C. Hartnell, 132. Comd 20 Sqn 1942-43, 10 Sqn 1943; SASO RAAF Overseas HQ. 1943-44; comd RAF Stn Driffild 1944-45, 1 OTU 1945; Dir Air Intell RAAF Cd 1945. Regular air force offr; of East Malvern, Vic; b. Melbourne, 15 Apr 1916.

⁷ Gp Capt J. Alexander, OBE, 44. Comd 11 Sqn 1939-41, 9 Sqn 1941, 10 Sqn 1942-43, RAF Stn Mount Batten 1943-45. Regular air force offr; of Brisbane; b. Brisbane, 3 Apr 1907.

by the Leigh-light Wellingtons which were now being equipped with Mark III radar. The sightings were made at all hours of the day and night, no peak period being apparent and were distributed fairly evenly over the whole area patrolled, the most successful day normally following the most intensive night effort. The Australians sighted only one U-boat, and that submerged quickly, but the lesson of "Enclose" was plain to all aircrew, in that if one area could be patrolled with sufficient aircraft, a barrier⁸ would be placed in the way of submerged U-boats, some of which must surface before their air and battery supplies were exhausted and thus become the target for attack by one of the aircraft. The incidence of sightings, roughly one for every sixty-one hours flying, for the first time made the Bay patrols comparable in value to those around threatened convoys. With the adoption of a new 100-foot spacing for depth-charges to give greater chances of straddling a U-boat, and the partial introduction of centimetre radar, there were signs that aircraft would recover tactical advantage in the transit areas.

The 100-foot spacing was at first unpopular with crews because the theoretical lethal effect of the standard Torpex-filled 250-lb depth-charge was only approximately 33 feet. The new spacing thus apparently left zones of safety. However, analysis by the Operational Research Section had demonstrated that many U-boats had escaped because of under-shooting or overshooting of a short stick when aimed solely by pilot estimation. The large increase in probable lethal length of the stick of depth-charges greatly improved the chances of a "straddle". When attack was made from the quarter, any straddle should place one or more depth-charges within lethal distance. This is one of the many instances during the war when the scientist discovered an objective solution which had



⁸ The official title of this technique was the "Ribbon Method". Theoretically with dense and constant patrol of an area sufficiently wide, and perfect radar and visual lookout, every U-boat attempting to cross the "Ribbon" must be discovered and the barrier would then become the "unclimbable fence" by which name it was popularly known by aircrew. In practice factors of weather, gaps in patrol, radar and other equipment failure, individual and crew errors, all detracted largely from any optimum benefit.

escaped the notice of, or even contradicted, the experienced fighting man himself.

Five naval support groups, two of which included auxiliary aircraft carriers, were available in April for operations in the North Atlantic independent of the normal convoy escorts. These groups together with increasing numbers of aircraft continually broke up and pinned down U-boat wolf-packs at a distance from the main convoys. Strength began to ebb away from the U-boat offensive because, although construction still surpassed casualties, for the first time in many months U-boats failed to press attacks home against convoys, even when initially well placed to do so. This desirable effect sprang from mutually-supporting operations in many areas, and, although apparent at the time, could not be regarded as permanent until the initiative gained by the Allies had passed from defensive to offensive measures. The convoy battles in the North Atlantic continued, although to a lesser degree than in March; U-boats showed increasing nervousness whenever aircraft were likely to be on patrol.

Australians serving with No. 86 (Liberator) Squadron R.A.F. played a consistent part in breaking up threatening enemy concentrations, and Burcher, who had already distinguished himself the previous month, was rewarded on 6th April when he surprised and sank *U632*, a 517-ton U-boat which was shadowing a convoy 400 miles south-west of Iceland. On the same patrol he found a second U-boat, which hastily dived as he dropped his one remaining depth-charge, but again the subsidiary task of breaking enemy contact was achieved. The next convoy routed from Nova Scotia was again attacked and lost three ships before it came within range of the Liberator patrols, but the pursuit was then abandoned and this convoy reached port without further loss. Burcher was again involved and attacked one U-boat, his sixth attack in less than a month. Flight Sergeant Bookless⁹ of the same squadron attacked a U-boat on 20th March while escorting a convoy south of Iceland, and the enemy made no attempt to surface again during the three hours in which he maintained patrol. The cumulative effects of naval and air pressure were becoming apparent, and morale and efficiency—extremely delicate reactions, especially in submarine operations—appeared to have withered rapidly.

Convoys for North Africa were also shadowed by U-boats which showed little inclination to attack while aircraft were present. The Hudsons and Catalinas at Gibraltar extended their searches over wide areas and on 5th April Pilot Officer Dalton¹⁰ of No. 233 delivered an excellent depth-charge attack on a U-boat near the Canary Islands. His first approach was abandoned as the U-boat remained on the surface firing two heavy guns and one cannon, but as Dalton made a second circuit, the enemy changed tactics and was in the act of diving when depth-charges straddled it. A second Hudson was sent to patrol the area during the afternoon, and found the badly-damaged U-boat rolling on the surface. After more depth-

⁹ F-Lt J. H. Bookless, 405292; 86 Sqn RAF. Draftsman; of Brisbane; b. Brisbane, 13 Feb 1919.

¹⁰ F-O K. R. Dalton, 408974. 233 Sqn RAF, Iraq Commn Flight RAF. Clerk; of Ivanhoe, Vic; b. Richmond, Vic, 12 Feb 1920.

charges had been dropped, *U167* submerged with difficulty but soon afterwards it foundered ten miles south-east of Gran Canaria.

In the Bay, Operation "Enclose" was to be repeated in the same patrol area beginning on 5th-6th April. There was a consequent slight lull in activity during the first few days of the month, while squadrons prepared aircraft and rested crews. This, however, was amply compensated by the results obtained when intensive flying commenced. No. 10 made four sightings and No. 461 one during "Enclose 2" although the difficulties of large aircraft as yet not fully equipped for night operations allowed only one of these U-boats to be attacked. This was at 1.40 a.m. on 11th April when Flying Officer McKenzie¹ dropped his depth-charges just after his target had dived to safety. Again the only U-boat actually sunk during the whole operation was the victim of a Leigh-light Wellington, but Coastal Command was extremely gratified by the opportunities for attack offered by dense cover of a restricted area. On 13th April a new operation ("Derange"), based on similar principles, came into force with a proposed duration of one month. Each squadron was to provide a constant minimum daily effort so that there would be no gap in the patrol area—now moved slightly north-westwards to lie between parallels 45 degrees and 49 degrees north and meridians 08 degrees 30 minutes and 12 degrees west. No. 10 was called on initially for two sorties, and No. 461 one and a half sorties every day, but this effort was to be applied alternatively by night and day.

The new patrols were as productive as the former ones and No. 10 continued its spate of U-boat sightings. On 14th April, Flying Officer Rossiter² attacked a U-boat half a minute after it had submerged, and four days later Flying Officer Farmer³ reported a fundamental change in enemy tactics when a U-boat on which he homed remained surfaced and opposed him with several guns. This had previously been a general tactic for Italian submarines, but this month was the first in which German U-boats had employed it. Farmer made a preliminary attack with two bombs and then circled the violently zigzagging enemy while awaiting a suitable opportunity for a low-level attack. This came at 9.22 a.m., six depth-charges spreading at the back of the conning tower. The *Sunderland* had been hit and two crew members injured, but determined fire from the nose and upper turret had restricted the enemy gunners sufficiently to enable the *Sunderland* to escape fairly lightly. Next day an R.A.A.F. *Sunderland* met another U-boat which was determined to stay surfaced and fight back; again, by crafty approach and good crew drill, depth-charges straddled the target, but did not explode as, owing to an unfortunate error, they had been dropped unfused.

The value of the new Biscay patrols depended largely on the regularity and density with which they could be maintained. Coastal Command had

¹ F-Lt M. K. McKenzie, 408662; 10 Sqn. Accountant; of Melbourne and Ballarat, Vic; b. Kyneton, Vic, 5 Oct 1915. Killed in action 17 May 1943.

² W Cdr G. G. Rossiter, DFC, 406796. 10 Sqn; comd 40 Sqn 1945-46. Student; of South Perth, WA; b. East Maitland, NSW, 9 Sep 1916. (WA Rhodes Scholar 1946.)

³ F-Lt E. H. Farmer, 405627. 10 Sqn; comd 10 LASU 1945. Process engraver; of Ashgrove, Qld; b. Brisbane, 13 Sep 1919.

a relatively low allocation of technical and flying personnel, so at this time energetic measures were taken to economise in manpower, and to get the maximum flying hours with minimum waste. One Sunderland squadron was disbanded, and all others were increased in size from nine to twelve aircraft. At the same time a scheme of planned flying and planned maintenance was instituted. This system which aimed at a constant level of aircraft availability by economical use of every airman and airwoman, did not affect No. 10 which was a self-contained unit, but No. 461 which had struggled hard to maintain operations from the very inadequate base at Hamworthy, moved on 20th April to Pembroke Dock to share the facilities there with No. 228 Squadron which was brought from Northern Ireland to engage in the Battle of the Bay. This reorganisation of the flying-boat squadrons, and the introduction at the same time of a second Leigh-light Wellington squadron (No. 407 Squadron R.C.A.F.) ensured that not only would pressure from the air during May be sufficiently strong to ensure a constant succession of targets in the Bay, but that many more of the ensuing attacks would be lethal.

Operation "Derange" was still producing opportunities for the Australian squadrons. On 29th April after Flying Officer Gipps⁴ of No. 461 had marked the spot where he forced a U-boat to dive, Flying Officer Gerrard⁵ arrived to find the enemy re-surfacing, and dived immediately despite determined anti-aircraft fire to execute an accurate attack. The submarine remained surfaced, turning in circles and still firing as Gerrard climbed to drop his depth-charges. Meanwhile Gipps had received Gerrard's radio report of the attack and had returned immediately to find the U-boat slightly bows down, and making a zigzag pattern on the surface as it engaged in a gun duel with Gerrard. Gipps flew straight across the enemy, whose fire had swiftly been transferred against this new danger, and he also straddled the U-boat, which lay stationary for a few moments, then sank horizontally. A few seconds later the stern emerged at a steep angle and finally disappeared in a smother of foam.⁶

Another U-boat was sighted by No. 10 on 30th April although it quickly submerged before an attack could be made, but, on 1st May, Smith of No. 461 was diverted to find a U-boat already damaged by a Halifax aircraft, and executed an accurate attack at 11.40 a.m. just after the enemy submerged. By this time the Sunderlands were flying almost exclusively by day because it was apparent that U-boats, disconcerted by the regularity with which they had been surprised at night during April, were willing to surface only in daylight when at least visual watch for aircraft could be kept. The repeated necessity to crash-dive, however, because of the increased number of Coastal Command aircraft

⁴ F-Lt R. de V. Gipps, 405404. 10 and 461 Sqns. Civil engineer; of Bardon, Qld; b. Mt Colah, NSW, 5 Feb 1914.

⁵ F-Lt N. C. Gerrard, 401502; 10 Sqn. Clerk; of Manly, NSW, and Gisborne, NZ; b. Gisborne, 22 Dec 1917. Killed in action 11 Aug 1943.

⁶ This incident is noteworthy for one of the few incorrect decisions of the Admiralty Assessment Committee, which classed this U-boat as "sunk". The enemy vessel was *U119*, a 1,600-ton minelayer which surprisingly was not damaged at all. She continued her voyage to the American coast and laid her mines. Returning home she was sunk on 24 Jun 1943 by HMS *Starling*.

in the hunting area rapidly depleted the high-pressure air supplies of U-boats, which consequently were sometimes found surfaced and in no condition to dive immediately. This undoubtedly led to some of the incidents of U-boats fighting back during April and May, but at the time it was assumed that individual U-boat commanders also used this expedient to preserve fighting spirit among crews unnerved by repeated crises of evasion.⁷ At this time, too, U-boat crews lost faith in their German search-receiver which had previously been of inestimable value to them and discontinued its use. On 14th May Doenitz gloomily reported to Hitler that "it now takes a submarine ten days to get through" the Bay of Biscay, and further said "... we are at present facing the greatest crisis in submarine warfare, since the enemy, by means of new location devices, for the first time makes fighting impossible and is causing us heavy losses."⁸ This could not be known to Coastal Command, but the effect of enemy indecision was that metre radar, previously entirely nullified by German search-receiver, now regained its former importance as the Germans voluntarily abandoned their own counter-measures. In any case opportunities for day-searching aircraft increased enormously and during May the two R.A.A.F. Sunderland squadrons made twenty-two sightings and eight attacks, by far the most successful series of their operations up to that date.

On 2nd May Smith again found a U-boat at the very southern end of the "Derange" area, and approaching through broken cloud to within four miles he manoeuvred himself astern of the enemy and then dived to attack, being met at a range of one mile by fire from the enemy guns. The Sunderland flew through the black smoke puffs and the nose gunner directed machine-gun fire against the submarine's conning tower to distract the enemy aim. Smith dropped four depth-charges which blew the gun crews into the water and caused the U-boat to circle tightly and then become stationary with a heavy list to port. It caught fire and began to settle by the stern as the Sunderland approached for another attack. Just before the depth-charges fell a new gun crew emerged but they failed to reach their weapons, for again a straddle was achieved and the badly-damaged U-boat began to founder. As the conning tower vanished, approximately fifteen men jumped into the sea; the bows reappeared in the air, and then at a steep angle *U332* slid beneath the surface leaving a great bubbling pool of oil, air, wreckage and survivors.

Sunderlands of No. 10 attacked U-boats on 2nd and 3rd May, and No. 461 also made an attack on the latter date, although no positive results were obtained. Two more U-boats were sighted but not attacked during the first week in May, but Rossiter of No. 10 was rewarded on 7th May when the vigilance of his crew discovered no fewer than three U-boats during the course of a single flight. The first two were seen during the

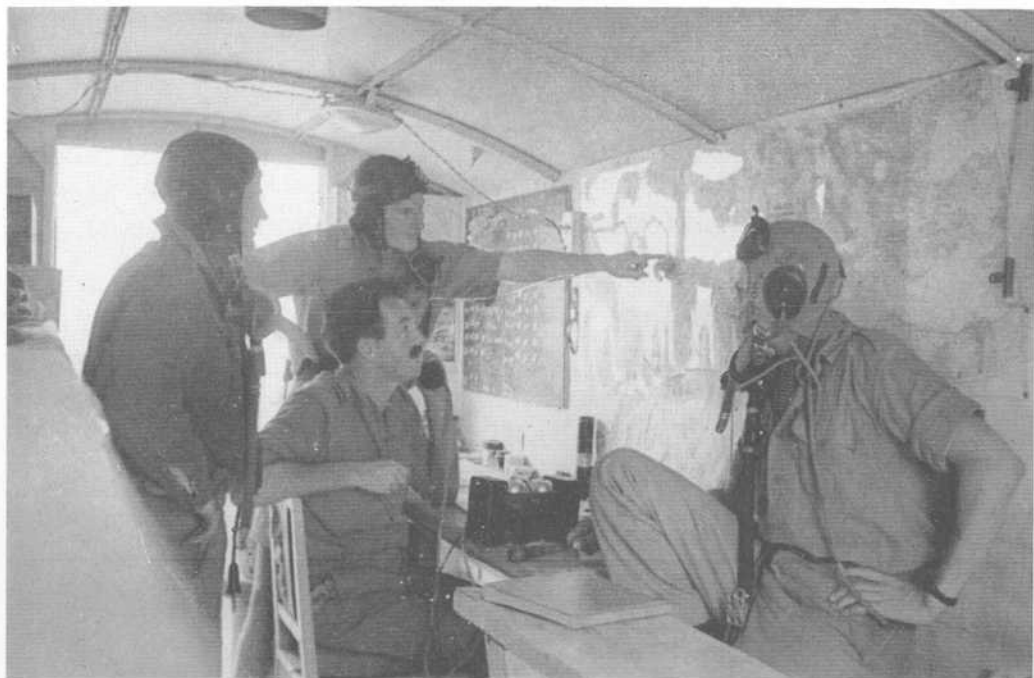
⁷ The increased surface time during daylight was a policy decision by Doenitz forced on him by the successful operations of Leigh-light aircraft. He encouraged U-boats to fight back if they could not dive to a safe depth before the aircraft could release depth-charges. The date of this policy order was 6 May but as has been seen above Australian Sunderlands met surfaced opposition as early as 18 Apr.

⁸ *Fuehrer Conferences on Naval Affairs 1943*, p. 38.



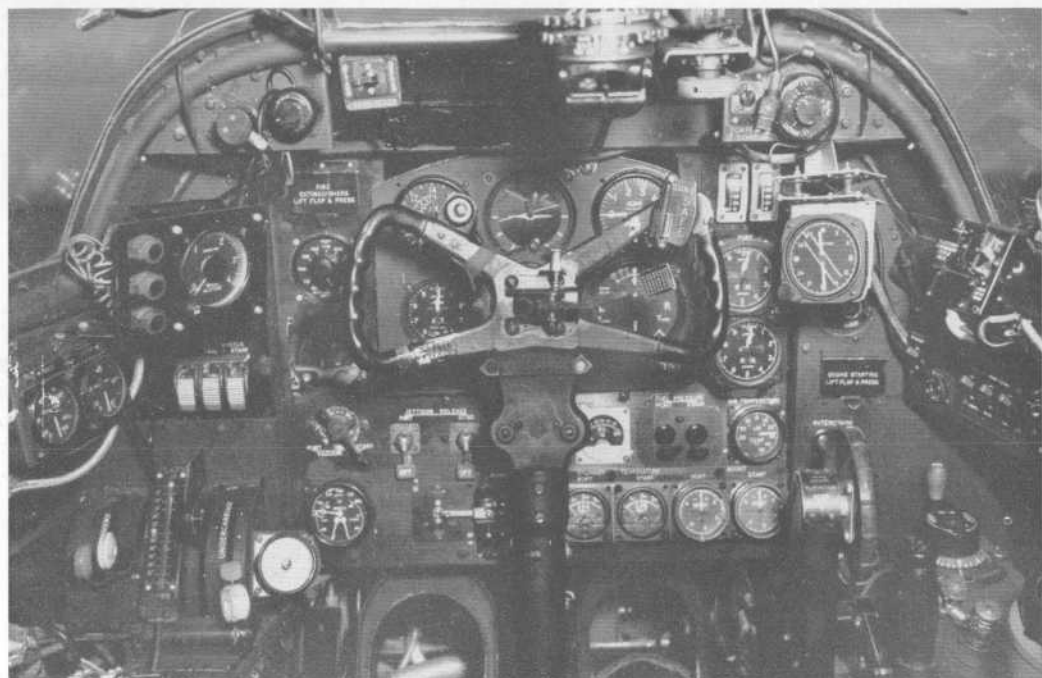
(R.A.A.F.)

Padre R. E. Davies of the R.A.A.F. conducting a special service for men of the Australian air force and army in the Garden of Gethsemane near Jerusalem, December 1943.



(R.A.A.F.)

The interior of No. 3 Squadron's mobile operations van, Tripolitania 1943. F-Lt G. Barton, the squadron Intelligence officer, is using the telephone, Sgt M. Thomas points to the wall map.



(R.A.A.F.)

The pilot's instrument panel of a Coastal Command Beaufighter (a twin-engined torpedo-carrying fighter) can be taken as a representative example. In four-engined aircraft a flight engineer was added to the crew to take over the task of checking the many dials and adjusting engine performance, fuel supply etc.



(R.A.A.F.)

On 29th May 1943, as there was a large hole in the hull of his Sunderland flying-boat, F-O G. O. Singleton of No. 461 Squadron landed it on Angle airfield, near Pembroke Dock in Wales, damaging only the port-side wing float.



(R.A.A.F.)

Wind storms present special problems to flying-boat bases. When, in January 1943, a gale struck Mount Batten, this Sunderland of No. 10 Squadron was forced to use the two outer engines to take the strain from its moorings, while nearby an air force motor launch maintained a watch.



(R.A.A.F.)

After a mechanical overhaul, a Sunderland of No. 461 Squadron is launched from a slip at Pembroke Dock in order to make a test flight.



Framed by the port wing and float of a No. 461 Squadron Sunderland (captained by F-Lt I. A. F. Clarke), is the 700-ton *U106*, which had been straddled in a depth-charge attack by an R.A.F. Sunderland N/228. The combined attack by both Sunderlands, on 2nd August 1943, sank the U-boat.

(R.A.A.F.)

morning within a few miles of each other in the centre of the "Derange" area but both dived before the Sunderland could close their positions. Two hours later while flying just beneath a broad swiftly-moving cloud canopy against which the white camouflaged Sunderland was almost invisible, a third U-boat homeward bound was seen through binoculars. It was then about seventeen miles distant, so Rossiter rose completely into cloud and flew blind until within four miles of the estimated position, when he dived and closed swiftly. No opposition was encountered but the U-boat swung beam on as Rossiter swept over, two of his four depth-charges exploding within fifty feet of its hull. The Sunderland climbed steeply to port and while his gunners prevented enemy fire, Rossiter made a swift second attack from the port quarter, placing his remaining depth-charges across the vessel behind the conning tower. The U-boat circled for awhile obviously damaged, then became stationary and slowly submerged half an hour after the first attack. Rossiter remained another hour while a large crescent-shaped oil patch rose to the surface, but saw nothing further. The U-boat, *U109*, subsequently sank 240 miles north-north-west of Cape Ortegal.

Nor was it only in the Bay of Biscay that U-boats were receiving severe blows. In the Northern Transit between the Shetlands and Faeroes all possible aircraft were used to maintain pressure, and at the end of April a detachment of R.A.A.F. Hampdens flew anti-U-boat patrols from Sumburgh. The crews were untrained for the work, the aircraft had no radar aids and were slow and obsolete, but despite these difficulties Flight Sergeant Freeth⁹ of No. 455 made two accurate depth-charge attacks and sank *U227*, an outward-bound vessel making its maiden voyage, north of the Shetlands on 30th April. On the southern flank of the main Biscay battle, aircraft based on Gibraltar maintained a constant watch over supplies already being sent to North Africa in readiness for the invasion of Sicily and Italy. On 7th May Sergeant Holland¹ of No. 233 was almost at the extremity of his afternoon patrol south-west of Cape St Vincent when he saw a U-boat against the glare of the setting sun. The explosion of his well-aimed depth-charges seemed to lift the U-boat bodily out of the water and debris was thrown high in the air. The submarine attempted to dive, resurfaced, lay wallowing for awhile and then disappeared. Holland waited for half an hour but like Rossiter (it was the same day) saw only a widening oil patch although *U447* had actually foundered as a result of this attack.

These air successes in the transit areas gave some hope that U-boats would arrive in poor fighting condition in their operational areas, but at the beginning of May there were still 134 U-boats at sea in the Atlantic, and the spirit of their crews, though damped, was not yet broken.² Early

⁹ F-Sgt J. S. Freeth, 411768, 144 Sqn RAF, 455 Sqn. Salesman; of Coogee, NSW; b. Coogee, 23 May 1920. Killed in aircraft accident 24 May 1943.

¹ F-O T. V. Holland, 416002; 233 Sqn RAF. Student; of Adelaide; b. Adelaide, 16 Jun 1921.

² There is no reliable evidence which resolves this supposition. Doenitz was worried about the difficulties of crossing the Bay, but U-boat logs do not record any undue fear. In Mar 121 U-boats traversed the Bay of which 18 (15%) were attacked and 1 sunk; in Apr 117 crossed of which 27 (23%) were attacked and 1 sunk; in May 113 made passages of which 67 (59%) were

in the month a terrific battle raged round ONS-5 while this convoy was to the south-east of Greenland. On 4th May air bases in Newfoundland were fogbound and up to forty U-boats ringed the convoy sinking ten ships within forty-eight hours. By midnight on 5th May, however, the weather was calm but foggy and during the night naval vessels frustrated twenty-four enemy attempts to break through, and after the arrival of the 1st Escort Group just before dawn the U-boats retired having themselves lost six vessels. Radar played a prominent part in this successful defence, but as with aircraft the Germans suspected some revolutionary principle to which they had no counter. A few of the U-boats followed the convoy farther westward but made no attempt to molest the ships.

It is noteworthy that this was the last occasion on which an enemy wolf pack pressed home its attacks with determination when in a position to do so. Apart from actual increases in naval and air defences, the economy with which coordinated sea and air power could be brought to bear on the focal danger point at any time played a large part in the change which came over the struggle at sea. For its part, Coastal Command during May began to issue a daily signal to Nos. 15, 18 and 19 Groups, Iceland, Gibraltar and Eastern Air Command (Canada) indicating convoy priorities in the North Atlantic. A similarly-addressed signal gave the daily estimate of probability areas in which U-boats were massing. These procedures gave a far higher degree of tactical flexibility and permitted local commanders to husband their resources when no serious danger threatened, in favour of a maximum effort against any serious assault. There was, however, no immediate apparent slackening of effort by either protagonist. The U-boats repulsed around ONS-5 fell back to waiting areas to intercept the next tempting convoy, while throughout the breadth of the North Atlantic there were almost daily encounters between aircraft and U-boats.

Thus on 7th May, Turnbull flying a Hudson of No. 169 attacked a U-boat in position 59 degrees north, 26 degrees 25 minutes west while giving cover to the next ON convoy which was then 300 miles south-west of Iceland. On the 12th Burcher and Flying Officer Webb³ both of No. 86 figured in two separate attacks against U-boats while they were giving support to HX-237. Two days later Pilot Officer Gaston⁴ of the same squadron while proceeding to escort SC-129 sank *U266* at 4.30 p.m. in position 47 degrees 45 minutes north, 26 degrees 57 minutes west; only forty minutes later he sighted a second U-boat which was forced to dive. On the 16th Burcher made two further attacks in mid-Atlantic and Turnbull depth-charged U-boats on the 17th (position 60 degrees 55 minutes north 17 degrees 40 minutes west) and the 21st (60 degrees 42 minutes north 19 degrees west).

attacked and 7 sunk. The author feels that this increasing danger in the Bay did affect crews' determination to attack convoys around which air cover would again have to be faced.

³ F-Lt H. N. Webb, 409192. 220 and 86 Sqns RAF. Grazier; of Charleville, Qld; b. Caulfield, Vic, 18 Nov 1908.

⁴ F-Lt B. F. Gaston, DFC, 406646; 86 Sqn RAF. Clerks; of Cottesloe, WA; b. Cottesloe, 13 Apr 1921.

While Australians were thus meeting considerable excitement during their May patrols, the real test of strength was being fought out round SC-130, a convoy of 37 ships in 10 columns which sailed from Sydney, Nova Scotia, on 11th May. Fog and icebergs were encountered during the early part of the voyage, but by the morning of the 16th the convoy was proceeding steadily eastward at 8 knots in perfect weather.⁵ By the 18th it was obvious that this convoy was being shadowed by U-boats and that a major battle might develop. By midnight at least four U-boats were in contact but vigorous naval escort tactics prevented the enemy from breaking through, and just before dawn the convoy made an evasive alteration of course 90 degrees to starboard. This was designed to frustrate a probable dawn attack and was very successful. Indeed Liberators of No. 120 Squadron which began escort duties shortly after dawn found several U-boats in the area where it would have been had it not changed course.

The tally of that hectic day for No. 120 seems fantastic even in retrospect: T/120 made 6 sightings of U-boats of which 2 were attacked and one sunk; P/120 sighted 6 and attacked one; O/120 sighted 2 and attacked both; Y/120 sighted and attacked one. There could be no doubt at this stage that SC-130 was the intended target for a major enemy effort, especially when at noon the 1st Escort Group, which was reinforcing the convoy, discovered and attacked two U-boats fifteen miles astern. Further actions involving both air and naval forces took place that evening but on each occasion the enemy failed to break through and the slow vulnerable convoy lumbered on unscathed. Air cover was again given during the night and throughout the 20th when no fewer than 14 sightings were made, but at an increasing distance from the convoy as the U-boats were forced ever outwards. Three of these sightings were made by Flying Officer Lynch⁶ in X/59. At 7.45 a.m. while patrolling fifteen miles off the convoy's port bow (in position 55 degrees 30 minutes north, 30 degrees west) he saw a fully-surfaced U-boat wallowing in a heavy swell only four miles away; he made an immediate head-on attack and forced the enemy to dive. Three hours later while thirty miles off the port beam of the convoy he saw and attacked a second U-boat and just more than an hour later he sighted a third but this one dived before he could attack.

Heavy air escort continued for several days but after the night of 20th-21st no more U-boats were seen and consequently SC-130, although apparently most heavily beset, arrived in the United Kingdom without the loss of a single ship. Several features contributed to this remarkable success—air support had resulted in 30 sightings and 10 attacks; the arrival of 1st Escort Group had permitted vigorous naval measures, and efficient evasive steering had prevented any initial success which might

⁵ An additional measure against the U-boat was to increase the speed of SC convoys from 6½ to 8 knots chiefly by a selection of more modern ships for the trans-Atlantic run.

⁶ F-Lt G. B. Lynch, 402373; 59 Sqn RAF. Draftsman; of Epping, NSW; b. Ashfield, NSW, 24 June 1920.

have evoked a more determined follow up by the enemy. For the first time a wolf pack had indisputably failed to press home its attack. Doenitz, who knew full well that morale and efficiency are delicate plants apt to wither rapidly if no longer nourished by rich success, acted promptly. A few days later he ordered all U-boats to withdraw from the North Atlantic and to gather near the Azores. No Allied ships were lost anywhere in the Atlantic north of meridian 45 degrees north during the rest of the month.

In the Bay of Biscay the R.A.A.F. squadrons maintained their patrols but failed to sight a single U-boat during the second week of May. The "Derange" area was then extended down to the Spanish coast to prevent U-boats slipping out undetected, and the Australians sighted five U-boats during the third week although only one attack was possible. By this time the enemy was well aware of the area densely patrolled and once more Ju-88 fighters were thrown in to help the U-boats. Smith and Dods escaped lightly from engagements forced upon them on 14th and 17th May, but on the 17th Flight Lieutenant Weatherlake⁷ was not so fortunate when, after a heroic battle for half an hour with Ju-88's, he returned with 200 bullet and four cannon holes in his Sunderland. Again on 19th May Rossiter had to elude an Me-110 before he located a dinghy containing two survivors of a Liberator shot down six days before in a battle with five Ju-88's. After dropping emergency provisions he circled the dinghy awaiting permission from No. 19 Group to alight on the sea. Eventually he made a masterly landing in difficult conditions and rescued the two men.

A similar mid-ocean rescue was attempted on 28th May by Dods, who in March had shown fine airmanship when forced to make an emergency night landing in the open sea. His present search was for six survivors from a Whitley aircraft. He found the dinghy but in attempting to land cross wind along the heavy swell, the Sunderland was suddenly hurled into the air by an unseen cross-swell and before full control could be regained it dived into an approaching wave. Dods was killed instantly and Gipps, who was acting as co-pilot, seriously injured as the aircraft plunged beneath the surface. The crew scrambled out through the astro-hatch only to find that all dinghies except one had been damaged. Gipps was floating helplessly some way from the wreck, but Flight Sergeant Mackie⁸ swam over and supported him for thirty minutes until the remaining dinghy could be manoeuvred over to him. The Sunderland and Whitley crews then joined forces and roped their dinghies together.

Help came at dawn next morning when Pilot Officer Singleton⁹ of No. 461 found them at 6.30 a.m., although the cloud-base was only 100 feet above the sea and visibility was less than half a mile. In view of these

⁷ F-Lt J. G. P. Weatherlake, 404944. 10 and 461 Sqns, 298 Sqn RAF. Clerk; of Sydney; b. Brisbane, 17 Nov 1918.

⁸ W-O W. Mackie, BEM, 411354; 461 Sqn. Bank clerk; of Hay, NSW; b. Grafton, NSW, 2 May 1916.

⁹ Sqn Ldr G. O. Singleton, 400841; 461 Sqn. Salesman; of East St Kilda, Vic; b. Prahran, Vic, 2 Nov 1915.

conditions Singleton determined to land at once before he lost sight of the castaways, and he successfully put his *Sunderland* down near the dinghies. A bunk was wrenched from the wardroom to make an improvised stretcher for Gipps, and all the men were taken aboard the *Sunderland* which was now, however, too heavily laden to take off in such a sea. More aircraft appeared overhead and, after a few hours, a French destroyer was homed to the position. All the survivors were transferred to the destroyer which took in tow the *Sunderland* which was now manned only by a skeleton crew. After four and a half hours, however, the *Sunderland* broke adrift and Singleton determined to attempt a take off. For three miles the *Sunderland* battered across the sea, crashing from wave to wave and enveloped in spray, until finally it was flung upwards into the air. Singleton got the machine under control but, as a jagged hole seven feet by four had been torn in the bottom of the hull, it was now impossible to alight on water again, nor could the crew bale out as no parachutes were carried.¹ In this dilemma Singleton radioed to base that he would attempt to land at Angle airfield near Pembroke Dock. Arriving safely over Milford Haven at 8 p.m. he jettisoned all excess fuel, equipment and inflammable material. Then with his crew at improvised crash positions he made a low approach over the cliff where the airfield adjoined the sea. The keel jarred against earth and cut a shallow furrow through the turf alongside the runway for 150 yards and then the *Sunderland* lost speed and laid gently over on one float, buckling the wing-tip but without further injury.

Heavy patrols continued in the Bay during the last ten days of May and both Australian units maintained their new target effort of two sorties every day. On 21st May Gerrard made an attack, but during this period three other U-boats were seen which quickly dived to safety. On 29th May Flying Officer Moran of No. 59 while flying a sweep to the west of the Bay sighted a U-boat which opened fire and then attempted to dive as he closed to attack. His depth-charges exploded near the vessel which broke the surface apparently out of control and then slowly resumed an even keel. Moran made a second attack and again the U-boat seemed to lift bodily and then settle with a list to port. Four or five men then appeared on deck and opened fire while Moran circled. The U-boat was apparently badly damaged but it slowly gathered way, though both its speed and direction were unsteady, and finally it submerged under cover of a rain-squall.² The following day Dalton (No. 233) made an attack in the western Mediterranean, but the month ended with attention focused once more on the Bay where a new form of coordinated attack by several aircraft was introduced. At 4 p.m. on 31st May *U563* was sighted and twice attacked by a Halifax. It was apparently unable to submerge, so the Halifax began to home other aircraft in the area. At 5.15 p.m. a second

¹ Parachutes and other ancillary equipment had been removed to give the *Sunderlands* better range and endurance, so that each patrol would have the maximum effect in the U-boat war. In flying-boats little reliance was at any time placed on parachutes, most crews preferring to make an emergency landing.

² This was *U552* inward-bound. She was badly damaged and did not go to sea again until 2 Oct 1943.

Halifax made two attacks and shortly afterwards two Sunderlands were attracted to the position. Flight Lieutenant Mainprize³ of No. 10 circled the manoeuvring U-boat and made his first attack at 5.45 p.m. against weak and ineffective anti-aircraft fire. Two depth-charges burst very close to the hull, and the submarine, which had been trailing oil but turning easily, then stopped. Mainprize circled again and made another attack two minutes later, after which the U-boat went down further by the bows and seemed unmanageable for a short time, although finally it again began to move forward. Two more accurate attacks by a Sunderland of No. 228 finally ruptured its hull and only a bubbling oil pool remained, scattered with wreckage and the bodies of thirty men.

While this battle was being fought Doenitz was in conference with Hitler and reported:

The substantial increase of the enemy Air Force is the cause of the present crisis in submarine warfare The determining factor is a new location device evidently also used by surface vessels by means of which planes are now in a position to locate submarines. When the ceiling is low, visibility poor, or at night they can carry out surprise attacks

Our losses have increased during the past month from . . . 13 per cent of the submarines at sea to . . . approximately 30 per cent of all submarines at sea. These losses are too high. We must conserve our strength, otherwise we will play into the hands of the enemy.

I have withdrawn from the North Atlantic to the area west of the Azores in the hope of encountering less air reconnaissance there

We don't even know on what wavelength the enemy locates us. Neither do we know whether high frequency or other location devices are being used.

He then went on to outline various expedients to restore tactical value to the U-boat—including technical devices, heavy defensive armament, an increased construction program and more support from the German Air Force—being interrupted by Hitler who affirmed:

There can be no talk of a let up in submarine warfare. The Atlantic is my first line of defence in the west, and even if I have to fight a defensive battle there, that is preferable to waiting to defend myself on the coast of Europe.⁴

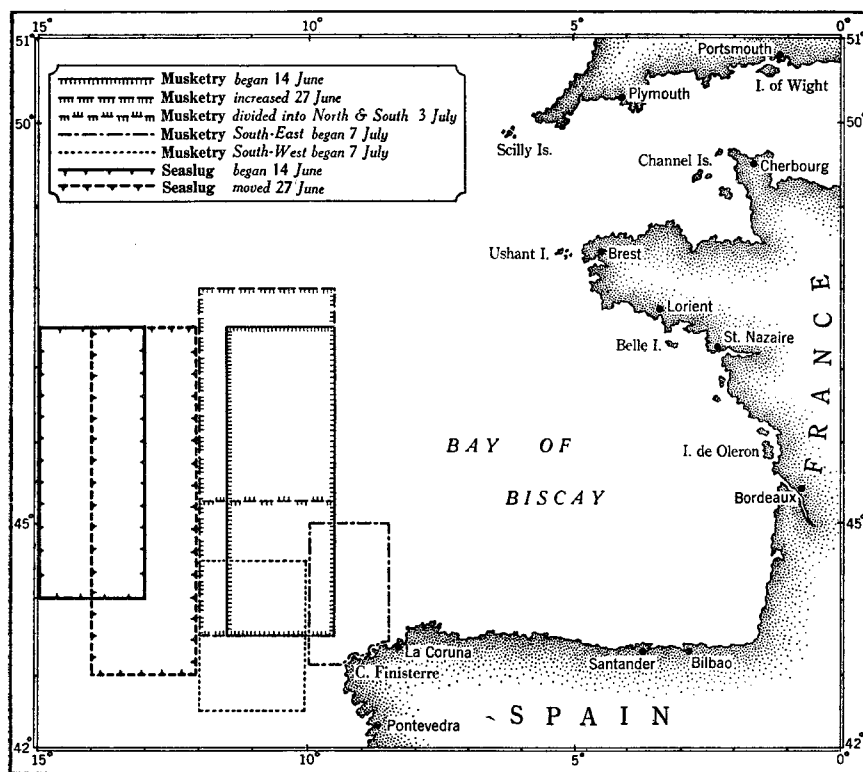
The bases of this appreciation, of course, were fully known at this time to Coastal Command with the exception of the stupendous blunder of the Germans in not realising that the secret location device was simply a form of centimetre radar. It was fully expected that from captured H2S equipment⁵ the enemy would evolve a counter as swiftly as he had ter-

³ F-Lt M. S. Mainprize, DFC, 401451. 10 and 40 Sqns. Accountant; of Melbourne; b. Neutral Bay, NSW, 2 May 1918.

⁴ *Fuehrer Conferences on Naval Affairs, 1943*, pp. 40-46.

⁵ The GAF salvaged an intact H2S set from a crashed bomber in Mar 1943 and published a full technical summary. This was made available to German naval scientists but they were convinced that they had already found a suitable answer to 10-cm ASV by fitting a "magic eye" to the existing Metox search-receiver. Accordingly scant attention was made to the GAF report. The "magic eye" attachment proved a failure during operations in May and counter-measures were sought in all directions but this report was still overlooked. In Jul a further fortuitous circumstance attended this enemy tragedy of errors. A captured Coastal Cd pilot (himself breaking the strong rule that silence, not incorrect information, is the only safe path for prisoners) pulled wool over the German technicians' eyes by stating under interrogation that our aircraft actually homed on to radiations emitted from the Metox. This started the "great radiation scare" during which counter-measures were sought against non-existent apparatus and even low-power crystal search-receivers were projected for U-boats as this type would not radiate. This near-panic con-

minated Coastal Command's 1942 successes by the introduction of the German search-receiver. That the Germans would ignore this simple solution and engage in a frantic, illogical search for counter-measures against phantasms of their own imaginations—which merely had the effect of sowing in the minds of U-boat crews profound mistrust of all technical equipment—could not be foreseen. Having seized the initiative in U-boat warfare, however, Coastal Command intended to retain it, and although enemy tactics appeared to develop on irrational lines, air power was ready to take full advantage of successive mistakes.



Operations in the Bay of Biscay: June-August 1943.

The first fruits of the May victory⁶ were that both aircraft and ships could be released to blockade the Biscay U-boat bases. Only one ship was lost during June in the North Atlantic, where fast vessels began on 25th June to make independent passage without protection of convoy. The logistic requirements of the impending Allied invasion of Europe

continued until Sep when tardily it was appreciated that they were on a wild goose chase. The Germans then turned in desperation to the long-neglected GAF report and finally realised the nature of Allied radar. From that time onward they produced increasingly efficient detectors against centimetre ASV.

⁶ 41 U-boats were destroyed by all agencies during May 1943.

could at last be fulfilled with certainty as long as U-boats were prevented from resuming pack attacks. No. 15 Group aircraft accordingly flew southwards to patrol the outer Bay, leaving a skeleton air protection to deal with the few outriders maintained by Doenitz on the convoy routes.

After 6th June No. 15 Group's effort, together with that of the two R.A.A.F. Sunderland squadrons and other long-range aircraft from No. 19 Group, was in a new area between parallels 45 degrees and 50 degrees north and meridians 17 degrees and 21 degrees west. It was soon apparent, however, that the smaller number of U-boats passing through the Bay were travelling in groups of three or five to give mutual protection by increased lookouts or, if discovered, to have sufficient fire power to drive off a single aircraft. The new operation ("Orderly") and "Derange" were therefore cancelled, and on 14th June two adjacent areas north-west of Spain were detailed for medium- and long-range aircraft. The main patrol area ("Musketry") was swept three times daily by seven aircraft on parallel track searches, so that at least four aircraft could quickly be summoned to the position of any sighting. On 16th June an experiment was made of sending out three aircraft in formation on each patrol, but this was discontinued after twelve days owing to the fall in sightings compared with extremely heavy effort required to maintain such a patrol.

Australian Sunderlands flew 1,254 hours on Bay patrols during June, but met little incident. On 14th June, Flight Lieutenant Skinner⁷ of No. 10 sighted three outward-bound U-boats in the "Musketry" area and circled at eight miles' range to home other aircraft. Singleton arrived at 9.30 a.m. when the U-boats were still steering in line abreast approximately two lengths apart. A third Sunderland arrived twelve minutes later, and, ignoring current instructions, made an immediate attack whereupon the enemy vessels began to submerge. Skinner and Singleton also dived down but were too late to attack. A valuable opportunity for concerted action had been thrown away by the impetuosity of the late arrival. Skinner, however, on 30th June made his squadron's only attack for the month when he found a single homeward-bound U-boat in the south of the Bay. His first approach in the face of heavy fire was abortive but at 11.25 a.m. he made a low-level attack, one depth-charge falling within fifty feet of the U-boat which took evasive action and remained firing throughout. The rear turret, port elevator, both mainplanes and the rear portion of the Sunderland's hull were severely damaged, and the rear gunner, Sergeant Burnham,⁸ was mortally wounded. Handicapped by an unmanoeuvrable aircraft with its tail turret useless Skinner was unable to maintain watch until other aircraft arrived, and the U-boat was last seen continuing its easterly course.

The experience of other squadrons was similar to that of Nos. 10 and 461 in that few opportunities presented themselves to repeat the triumphs

⁷ F-Lt H. W. Skinner, 407977; 10 Sqn. Clerk; of Tranmere, SA; b. Kensington Gardens, SA. 12 Jun 1917. Killed in action 18 Aug 1943.

⁸ F-Sgt J. S. Burnham, 413165; 10 Sqn. Student; of Sydney; b. Drummoyne, NSW, 14 Sep 1922. Died of wounds 30 Jun 1943.

of May, but air successes were large enough to keep U-boats entirely on the defensive. On 12th June Burcher had an inconclusive depth-charge and machine-gun battle with a U-boat in the South-Western Approaches. Two days later Sergeant Benson⁹ of No. 10 Operational Training Unit was himself shot down and captured when he sank *U564*. Crews from this Bomber Command unit had flown Whitley aircraft over the Bay for almost a year and were about to be withdrawn. During 1,862 sorties of these obsolescent aircraft fifty-four U-boats had been attacked but this was the first time that a U-boat had been destroyed. Benson's success in view of prevailing circumstances and the known limitations of his aircraft was a splendid example of the determination of air crew to complete the U-boat rout.

A similarly gallant attack against a 740-ton U-boat in the North Atlantic came ten days later when Fraser of No. 120 was flying to escort a convoy. The U-boat, later known to be *U194*, was some seventy-five miles to the north of the convoy but perhaps fearing the speedy arrival of naval vessels it remained surfaced and put up a heavy barrage. Fraser kept on a steady low-level approach but just before he dropped his depth-charges a cannon shell crippled the Liberator's hydraulic system and caused the bomb doors to creep so that only two depth-charges actually fell. Fraser did not realise that his hydraulics were damaged and prepared for a second attack. The depth-charges failed to release but as he tracked over Fraser realised that the U-boat was already sunk, and he saw a dozen men clinging to a long cylindrical object. His attention then returned to his own plight for a second shell had burst in the port wing and there was also a serious petrol leak in the starboard tanks. The bomb doors were forced open and the depth-charges jettisoned before he abandoned patrol and on arrival at Reykjavik the undercarriage and flaps were lowered manually before Fraser made a perfect precautionary approach in a tail-down attitude to compensate for the absence of brakes.

One obvious German counter against Coastal Command was to increase yet again the number of fighters in the Bay, but demands from all theatres of war were so great that Doenitz had to be content with Ju-88's. To frustrate this move Fighter Command in turn made available additional Mosquito night fighters for day interception in this area. The Ju-88's, however, proved ineffective against the newer types of Coastal Command aircraft and they began to fly in ever larger formations. This in itself meant fewer battles, but when they did come they were intensely bitter, although even a large formation could be defeated. On 2nd June a Sunderland of No. 461 captained by Walker was intercepted in the centre of the "Derange" area by eight Ju-88's. At 7 p.m. the tail gunner, Warrant Officer Goode,¹ reported the enemy formation six miles away and im-

⁹ W-O A. J. Benson, DFM, 412364; dtchd flight 10 OTU RAF. Station hand; of Inverell, NSW; b. Inverell, 29 May 1920.

¹ W-O R. M. Goode, DFM, 407499; 461 Sqn. Poultry inspector; of Henley Beach, SA; b. Westbourne Park, SA, 14 Jul 1909. Killed in action 13 Aug 1943.

mediately the navigator, Flying Officer Simpson,² took up the fire controller's position in the astrodome. The crew members off watch manned the guns firing through the galley hatches, which had recently been installed as a special modification by No. 461. The depth-charges were jettisoned and an enemy-report message sent to base while the Ju-88's disposed themselves three to port, three to starboard and one on each beam. As one fighter came in from each beam Walker screwed the Sunderland steeply down to the right and then over to the left but his port-outer engine was set afire. Incendiary bullets shot away the compass which threw burning alcohol over Walker. The fires were extinguished but the engine failed, and thereafter two pilots heaved at the controls for three-quarters of an hour while the enemy made twenty separate attacks. Simpson, though wounded, remained in the astrodome calmly directing the pilots and gunners as each attack developed, and even when the radio and inter-communication systems had been wrecked he contrived to pass notes by hand. In the third attack one enemy aircraft was shot down by the mid-ships gunner. The Sunderland, however, continued to receive heavy punishment although Walker and Flying Officer Dowling³ were taking such violent evasive action that the hull became strained and all the doors jammed. The rear gunner was rendered unconscious by an attack directed against his turret but he later recovered to work the turret by hand. The starboard galley gunner was mortally wounded but was soon replaced by the second engineer.

This desperate defence was maintained until the nightmare ended with only two enemy fighters in view. These made a last half-hearted approach but broke away without firing and flew off. Three Ju-88's were seen to crash into the sea and two others had received extensive damage, but this moral and physical victory left the Sunderland riddled with approximately 500 holes, its bridge a shambles with all radio and some flying instruments shot away, four men wounded and one dying on the bomb room floor. For 300 miles Walker struggled back towards Pembroke Dock, but finally was forced to put down near the shore off Cornwall.

This outstanding battle was followed by several weeks during which there was little enemy air interference over the Bay, but early in July formations of Ju-88's again appeared regularly in the "Musketry" area. On 8th July Flying Officer Handasyde of No. 53 Squadron had a desperate half-hour encounter with seven Ju-88's before his Liberator, heavily damaged by over thirty deliberate attacks, at last reached cloud cover. On 27th July Flying Officer Humble⁴ in a Sunderland of No. 10 was intercepted by four Ju-88's which attacked singly and in pairs, but were beaten off by steady gun fire and Humble's exceptionally fine defensive flying even after one engine had been crippled. This battle lasted for an hour but it was soon

² F-Lt K. M. Simpson, DFC, 403778; 461 Sqn. Accountant; of Manly, NSW; b. Granville, NSW, 20 Oct 1914. Killed in action 13 Aug 1943.

³ F-O W. J. Dowling, 400788; 461 Sqn. Property manager; of Echuca and Rochester, Vic; b. Bendigo, Vic, 29 May 1909. Killed in action 13 Aug 1943.

⁴ F-Lt R. C. W. Humble, 416441. 10 and 40 Sqns. Shop manager; of Burnside, SA; b. St Peters, SA, 23 May 1914.

eclipsed in savagery when, at 6.30 p.m. on 3rd August, Flying Officer Williams⁵ of the same squadron was hemmed in by two formations of three Ju-88's while a seventh fighter dived from cloud to make a head-on attack. Williams was carrying four fixed forward-firing guns, a novel modification just achieved by No. 10 Squadron. These were fired in addition to the front turret, but the enemy fighter closed to 100 yards still firing and, though itself hit, damaged the Sunderland and killed its front gunner. The leading section of three then split and attacked from both quarters. Cannon shells cut hydraulic lines in the Sunderland and wounded the fire controller, Flying Officer Gross.⁶ As in Walker's action, Gross now had to pass orders to his captain by hand, but although all seven Ju-88's continued to make determined approaches and three more men were wounded, the Sunderland was able to oppose each assault and at least two of the attackers were themselves badly hit. Williams used every small pause in this battle to fly towards distant cloud cover which he eventually reached and circled tightly until his pursuers, of whom only five were now visible, flew off towards Brest.

This recrudescence of air fighting coincided with renewed attempts of U-boats to fight their way out into the Atlantic. They had been held back in French ports until all had been equipped with twin and quadruple 20-mm gun mountings.⁷ On 27th June the "Musketry" patrol area was enlarged and on 3rd July it was divided into two areas for each of which a naval escort hunting group was available. Finally on 7th July two new areas for aircraft patrols were added to cover the extreme southern exits from the Bay. For the first time Coastal Command had sufficient aircraft to police these areas in strength, and the total number of anti-U-boat sorties during July rose to 1,081, of which the two R.A.A.F. squadrons contributed 111. Flying Officer Gray⁸ of No. 10 discovered a group of three U-boats attended by four Ju-88's on 5th July but his attack on the nearest enemy vessel came too late to do any damage as the U-boats dived quickly. On 13th July Flight Lieutenant Baird⁹ (No. 461) made a determined attack on a single U-boat and three days later Humble found two outward-bound U-boats in company. He circled in cloud until the U-boats separated and then dived to attack, but had to withdraw as the enemy vessels quickly came together and opposed him with accurate and determined fire. Again he circled and at last seized an opportunity to attack the nearer U-boat which lost several men overboard as the last depth-charge exploded near its hull. After five minutes this U-boat submerged apparently undamaged. Humble then turned against the remaining enemy but

⁵ F-Lt B. A. Williams, DFC, 416164; 10 Sqn. Journalist; of Lower Mitcham, SA; b. Adelaide, 22 Oct 1912.

⁶ F-Lt R. W. S. Gross, DFC, 285147; 10 Sqn. Clerk; of North Brighton, Vic; b. Adelaide, 18 Aug 1916.

⁷ *Fuehrer Conferences on Naval Affairs 1943*, p. 54.

⁸ F-Lt R. R. Gray, 407895; 10 Sqn. Accountant; of Adelaide; b. Bendigo, Vic, 19 Oct 1917.

⁹ Sqn Ldr R. D. J. Baird, 405119. 10 and 461 Sqns. Accountant; of Murwillumbah, NSW; b. Leeton, NSW, 1 Nov 1913.

this also dived, and although the Sunderland remained over the area neither U-boat reappeared. Meanwhile in the "Seaslug" area Flight Lieutenant Charlton (No. 59) had attacked a U-boat on 10th July and Gaston (No. 86) damaged another on 14th July.

Several more U-boats were discovered by pilots of Nos. 10 and 461 in the latter part of the month, but by a mixture of pugnacity and evasion these escaped attack. However, all squadrons had been closely studying ways of overcoming the new U-boat tactics and of cooperating with the escort groups, with the result that at the end of the month a new wave of success came to Coastal Command. One U-boat was sunk on 28th July, another the following day, and then came the most successful battle of the whole campaign.

At 9.45 a.m. on 30th July a Liberator of No. 53 sighted a pack of two 1,200-ton "milch cow" submarines and one 540-ton U-boat in "Musketry South". The Liberator began immediately to home other aircraft. A Catalina soon arrived and was sent to lead the 2nd Escort Group to the position. Shortly afterwards two Halifaxes of No. 502 Squadron, an American Liberator and a Sunderland of No. 461 were also circling the three U-boats. These vessels skilfully held close order, manoeuvring in tight turns and zigzags, thus presenting the full concentration of their fire-power to each aircraft as it vainly attempted to approach. Halifax B/502 opened the attack, but it was damaged as it broke through the curtain of fire, and, its bombs having fallen wide, it set course for base. The second Halifax then climbed and approached out of the sun to drop three 600-lb bombs.¹ This attack damaged one of the U-boats which lost speed and circled slowly to starboard. Flight Lieutenant Marrows² made the next attempt but was unable to penetrate the defences, and his second approach in company with the American Liberator also failed. At noon Liberator O/53 made an attack gallantly diving to low level and drawing upon itself an intense barrage from all three U-boats. This aircraft was heavily hit and its depth-charges undershot, but this diversion gave Marrows his chance. He followed the Liberator down, meeting no resistance until he had closed to within 1,000 yards. The U-boats then turned all their fire against the Sunderland. Marrows' own gunners silenced the nearest supply U-boat, and he dived so low that he was partially shielded by his target from guns on the other vessels. Marrows pulled out of his dive and barely cleared the enemy conning tower as seven depth-charges spread accurately across the U-boat. Instantly the Sunderland came under fire again but escaped without further damage while the U-boat, now astern, vanished in an immense eruption of foam. Twenty-five to thirty survivors were left swimming amid the wreckage, and as the other boats moved away Marrows returned and dropped his main dinghy to the Germans.³ By an amazing coincidence Sunderland U/461 had sunk U461.

¹ A new weapon especially suitable for the Halifax. They were dropped with the aid of a bomb-sight and from higher altitudes than were depth-charges.

² F-Lt D. Marrows, DSO, DFC, 400656. 201 Sqn RAF, 10 and 40 Sqn. Accountant; of Bendigo, Vic; b. Bendigo, 8 Dec 1917.

³ This humanitarian act was forbidden 2 days later because of the current danger from enemy fighters.

A few minutes later Halifax S/502 made a third attack on the other supply U-boat (*U462*) which it had previously damaged and its bombs fell close enough to cause further damage and it began to settle lower in the water with its crew abandoning ship. Marrows now dived with his last depth-charge against the one remaining U-boat but broke away as he saw 2nd Escort Group approaching and opening fire. The U-Boat (*U504*) submerged but was quickly destroyed by several well-laid naval depth-charge patterns. Marrows was short of fuel and had to leave immediately but on his way home at 12.45 p.m. he found yet another U-boat. He dived immediately to use his one depth-charge but at the last moment enemy fire crippled his bomb-release mechanism and after machine-gunning the enemy he set course for an emergency landing at the Scilly Isles.

Two days later while Flight Lieutenant Fry⁴ (No. 10) was cooperating with 2nd Escort Group in this same area he saw a U-boat travelling surfaced at ten knots in a very rough sea only six miles from the sloops. He swung immediately towards the enemy and flew overhead, then made a tight turn to port to attack from the U-boat's starboard quarter against very accurate fire. His starboard-inner engine was hit, and when the *Sunderland* closed to 400 yards a shell exploded in the starboard main fuel tank and petrol flooded the bridge. All three pilots were probably seriously wounded at this point but Fry with supreme determination pressed home the attack. The tail gunner saw the U-boat enveloped in the explosion plumes and then sink bows first. The *Sunderland* maintained course for about six miles, turned towards the ships and plunged into the sea, bouncing twice before settling heavily into the 15-foot swell. Meanwhile H.M.S. *Wren* turned immediately to help the crashed aircraft. When it arrived ten minutes later all that remained was a stump of the mainplane with five of the crew clinging to it while a sixth man was seen swimming a quarter of a mile away. It was too rough to launch a boat even after oil had been pumped into the sea, but five men were hauled aboard by lifebelt and a seaman dived overboard and supported the other who was near exhaustion. Fry himself, whose indomitable spirit and skill combined to make this attack under conditions which might well have daunted the bravest heart, did not survive; but those members of his crew rescued soon learned that *U454* had been broken in two and had sunk within thirty seconds.

Also on 1st August, some sixty miles to the north-west Charlton discovered and attacked another single well-defended U-boat but owing to a fault in the *Liberator's* bomb-circuit only part of the stick of depth-charges fell and the U-boat finally submerged undamaged. A new development came next day when at 5 p.m. Flight Lieutenant Clarke⁵ of No. 461 sighted three two-funnelled destroyers in "Musketry North", steaming west-

⁴ F-Lt K. G. Fry, 407057; 10 Sqn. Farmer; of One Tree Hill, SA; b. Adelaide, 10 Aug 1913. Killed in action 1 Aug 1943.

⁵ F-Lt I. A. F. Clarke, 401346. 228 Sqn RAF, 461 and 11 Sqns. Clerk; of Footscray, Vic; b. Footscray, 9 Nov 1921.

ward at high speed. As Clarke closed to investigate he was fired on and recognised the ships as German *Narvik*-class destroyers. A Sunderland of No. 228 now approached and after an exchange of signals flew off to warn 2nd Escort Group. Clarke remained shadowing the enemy ships outside gun range until just after 8 p.m. when he found himself over a surfaced U-boat. The other Sunderland now rejoined Clarke while the destroyers turned on a reciprocal course and headed back for France. At 8.15 p.m. Clarke covered by supporting fire from N/228 dived on the heavily-armed U-boat. Seven depth-charges straddled the 740-ton vessel at the back of the conning tower just as it made a violent turn to starboard, but the explosion plumes had not subsided before the other Sunderland made an equally destructive attack. Clarke closed at once for a second attack again followed by N/228 and the U-boat then stopped with smoke and oil pouring from it and the crew scrambling over the shattered deck into the sea. Finally *U106* blew up and sank immediately leaving a large patch of oil and debris with many survivors.

Within six days, nine German U-boats had been sunk in the Bay of Biscay and five more in other waters.⁶ The destruction of four supply submarines was a great check to enemy plans for new campaigns in distant areas, and aircrews showed that by cunning, initiative and sheer determination they could overcome the formidable defences of surfaced U-boats. Such losses could not be borne by any service and once again Doenitz was forced into a radical revision of tactics. The phase during which U-boats ran surfaced by day and fought back ended with dramatic suddenness early in August and everywhere within range of Coastal Command bases the enemy reverted to a cautious policy of lying submerged by day and surfacing to ventilate and charge only at night. The corollary to this new plan was again increased support from the German Air Force with successful glider-bomb attacks against the escort groups which were withdrawn to the North-Western Approaches, and even greater attempts to disrupt the constant Bay air patrols. Coastal Command, however, had won a victory first on the convoy routes and then in the main enemy transit area and had no intention of allowing U-boats to recover their former effectiveness. The issue was clear that Allied plans for final victory depended almost entirely on the logistical factor of the trans-Atlantic supply route.

In these spring and summer battles which restored full strategic initiative to the Allies and which shattered, even to enemy minds, the illusion of the U-boat as a war-winning factor, Australians played a large part. In the wider aspects of tactical air plans, naval cooperation, technical aids and unlooked-for enemy blunders, they had no influence. Nor could it be said that Australians had any intrinsic qualities that made them superior to their contemporary British or American comrades, except that the experience and reputation built up by No. 10 during the early war years naturally drew to this work those among R.A.A.F. trainees most suitable to do it well. Normally, courses at general reconnaissance schools,

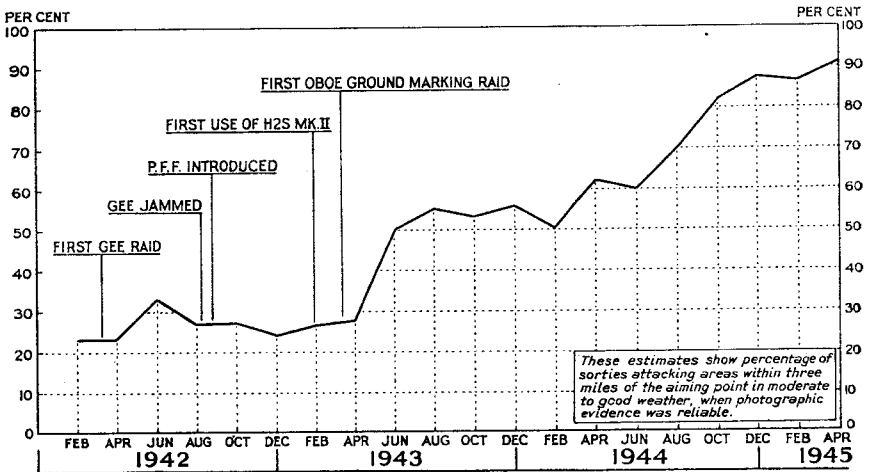
⁶ Two Italian submarines were also sunk in the Mediterranean.

a necessary preliminary to admission into Coastal Command, were available only to those who did exceptionally well in theoretical subjects. Those by temperament impatient to engage in more obviously active combat chose Fighter or Bomber Commands with the result that to Coastal Command came chiefly pilots and navigators of high intellectual capabilities, towards the higher age levels of trainees, and of phlegmatic, calculating, resourceful and determined character. The vast majority of patrols were without incident, a period of twelve to eighteen hours of watchful anticipation for a fleeting opportunity to strike, and this remained true even when the Germans adopted their daylight policy of fighting back. It was indeed the total flying effort which produced opportunities for individuals to attack, although the translation of sighting into attack, and of attack into destruction, depended on the standard of training of each crew. During this most vital of all battles preliminary to victory against Germany, Australians sank, or shared directly in sinking a very high proportion of U-boats destroyed from the air.

CHAPTER 17

EARLY PATHFINDER RAIDS

ON 15th August 1942, at the direct request of the Air Ministry, the Pathfinder Force (P.F.F.) was formed within Bomber Command. Initially it comprised one squadron of each of the four main types of night-bomber—Stirlings, Halifaxes, Lancasters and Wellingtons—located on adjacent airfields within No. 3 Group but under the direct operational control of Air Chief Marshal Harris. This prime organisation allowed picked crews from each existing bomber group to transfer without retraining to the new force, but it soon expanded into a completely new group (No. 8) by 8th January 1943, and the squadrons were re-equipped mainly with Lancasters and Mosquitos, the most suitable aircraft for the task.



Bomber Command: Estimated accuracy of night-bombing of German cities (excluding Berlin).

This idea of a *corps d'élite* of crews of high navigational ability was nothing new, and was in fact a necessary stage in the evolution of the technique of strategic bombing. Much earlier the Germans had employed *KG100* (i.e. No. 100 Wing) to precede the main force on each raid, and with the aid of navigational beams (Knickebein, "X" or "Y" systems) to accurately light up the target area with incendiary fires and thus permit visual bombing by the main bomber force. These German methods had been quickly appraised and defeated by counter-measures, but in December 1941 Bomber Command had pressed for "the formation of specialist squadrons to initiate raids". No. 3 Group equipped with Gee apparatus had already acted in this manner and, by August 1942 when the enemy first began to jam transmissions, had raised the average of

main force aircraft reaching the precise target in favourable weather to 40 per cent compared with only 26 per cent in the three months previous to February 1942. This was not sufficient, however, to ensure ultimate success by night bombing, and Harris, though strongly opposed to the appearance of any semi-autonomous body within Bomber Command, and himself advocating a specialist squadron within each group, finally agreed to the formation of the new agency, to be commanded by Group Captain Bennett.

Bennett was indeed the logical choice, for irrespective of the available aids, his was the temperament, knowledge, insight and driving force to squeeze maximum efficiency out of his aircrews. He did not suffer fools gladly, would accept no excuses, and set standards of navigation which were at once a challenge to and the despair of airmen less gifted than himself.¹ Under a less ruthless and burning spirit P.F.F. may well have failed to achieve its objective, for Bennett was faced with exactly the same passive opposition which in a different field hindered the development of national squadrons.

Although supposedly composed entirely of above-average crews, the Pathfinder Force, whenever enthusiastic recruits were lacking, was forced to accept crews detailed from each squadron. Few commanders were sufficiently altruistic to nominate their best crews on whom they relied to set the tone of their squadron; senior crews happily established on squadrons had little desire to transfer to Pathfinder Force where they would begin again as initiates. Sometimes the newest arrivals, sometimes the social outcasts were sent, and on at least one Australian squadron it was customary to draw lots whenever crews were to be transferred.

A mixed feeling of glamour and swashbuckling, aided by the material consideration that ranks in P.F.F. squadrons were uniformly one step ahead of those on normal bomber squadrons, did, however, attract both the most enthusiastic of trainees, and a substantial leavening of experienced men returning for a second tour of operations. From the beginning Australians volunteered in considerable numbers because of this spirit of adventure, but some of them lacked in some degree one or more of the ideal qualities for Pathfinder Force, which were laid down as "strong determined character, high standard of proficiency, intelligence, adaptability to new methods, above average navigational knowledge and at least average night vision".² This new avenue of ambition, which overrode

¹ Lord Harris, in *Bomber Offensive* (1947), pp. 25, 129-132, wrote: "[Bennett] was and still is the most efficient airman I have ever met . . . Don Bennett . . . was the obvious man for the job of head of the Pathfinder Force . . . his technical knowledge and his personal operational ability was altogether exceptional . . . he was a profound student of navigation . . . his courage, both moral and physical, is outstanding; and as a technician he is unrivalled. He will forgive me if I say that his consciousness of his own intellectual powers sometimes made him impatient with slower or differently constituted minds, so that some people found him difficult to work with . . . He has an unusual memory and can pick up a book on some highly technical subject and in a very short time get the whole thing off by heart . . . all this is rather unusual in a fighting man and we were lucky to get a man of such attainments to lead and form the Pathfinders."

² The high standard of navigation required caused a redistribution of duties among the PFF crews. The navigator became "the plotter" concentrating entirely upon chart work, being released from the time-consuming task of obtaining positional fixes from the radar navigational aids. This responsibility was assumed by the bomb aimer, designated the "set operator". Thus, the ultimate success of an attack rested largely on the teamwork and professional ability of a handful of these "navigation teams". Standard procedure for considerable portion of the outward journey demanded

normal postings policy, was another factor aggravating the dearth of Australians on R.A.A.F. squadrons. Whatever the quality of his aircrews, however, Bennett by rejecting, exhorting, intimidating or firing with enthusiasm, moulded a group of men with a distinct common purpose. Bennett's influence was far greater than the mere utilisation of what lay to hand. His powerful intelligence and instinct for operational needs was the bridge between the scientist and the individual airman; especially in regard to radar developments for target finding his influence was paramount.

When the Pathfinders first operated, including the last few Wellington raids of No. 460, they had no immediate startling success for they employed the flare and incendiary techniques already in vogue, at the very time when Gee, on which they depended, was being jammed by German counter-measures. Nevertheless many points of operational importance were discovered and studied during these early preparatory raids. Bennett was content to school his crews in basic procedures until three new devices, upon which he considered the success of the strategic bombing offensive largely depended, should reach perfection. The first of these was an airborne radar set, named "H2S", which presented on its cathode-ray tube a rough map of the ground immediately below the aircraft. Bennett showed during trials in July that early models incorporating the Klystron valve were unsatisfactory. Against considerable opposition he finally won approval to replace the Klystron with the highly-secret Magnetron valve which gave favourable results under all conditions and which doubled the range. Similarly he collaborated in the test of "Oboe", a ground-controlled technique of guiding single aircraft directly over any given objective within 350 miles of the parent installation. Both of these developments were designed to improve navigation to the precise target, while the third device solved the complementary difficulty of providing a visible aiming point for the main force of bombers. This was the "target-indicator bomb" (T.I.), a canister containing incendiary candles of primary colours. At any desired height a barometric fuse would detonate this bomb and thus release a cascade of pyrotechnic brilliance, easily distinguished from enemy dummy flares. Previously many raids had failed to do damage because pilots were led away from the true target by simulated conflagrations lit by German air raid wardens in open country.

From January 1943, however, the procedure adopted against most inland towns in Germany was for the leading Pathfinders ("finders") to drop long sticks of flares over the computed position of the target. A special flare for rallying succeeding waves was released as soon as the aiming point was seen visually and the second party ("illuminators") would drop bundles of flares near this precise objective. Target-indicator or large incendiary bombs were then aimed to give a positive mark to bomb aimers of the main force. The target indicators burned for approximately six minutes, and consequently they had to be renewed throughout

that each team find and plot one positional fix each minute. Under certain circumstances the flight engineer would release the target indicators and/or bombs.

the raid by yet another party of Pathfinders known as "backers-up". When cloud obscured the ground, distinctive sky-marker flares were used instead of target-indicator bombs, and these were released in a position relative to the true aiming point which ensured that bombs from aircraft employing the correct height and direction of approach would fall in the target area. These systems shifted the responsibility for the success of raids entirely onto the Pathfinders. The individual main-force bomb aimer was no longer required to identify his target but only to find and bomb a visible light in a given position. The stream of bombers could thus pass through the dangerous defended areas without delay and raids could be even further concentrated in time and space than had been the experimental ones of 1942.

The ideal of pathfinding was simple, but it was nevertheless very difficult to achieve, because, although photographs showed that under the new system bomb loads were falling much closer together than hitherto, often the mean centre of impact was well clear of the chosen aiming point, so that there was in fact no immediate and startling increase in damage to the enemy war potential. Bennett had to eliminate many difficulties before the reliability factor of pathfinder methods was assured. The differing types of aircraft employed all had varying serviceability, speed, load capacity and operational height limits. The serviceability of airfields was important, for in the event of a temporarily blocked runway, some aircraft vital to the technique might be prevented from taking off. For this reason aircraft detailed, for example, as finders had to be drawn from at least two different squadrons. The most meticulous timing was required during the various phases of illuminating and marking; early arrival exposed Pathfinders to special danger from enemy defences and might entail loss of key aircraft and consequently poor marking; late arrival exposed the main force to attack and turned the orderly bomber stream into a milling circle which often bombed wildly. These errors, however, whether due to human or material causes, were a challenge to Bennett's sense of exactitude and his ability to plan every detail of a complex operation.

During the early operations of the Pathfinder Force when it relied on Gee and incendiary bombs only, Australian activity in Bomber Command was confined largely to individuals. On 15th September No. 460 Squadron left the line to re-arm with four-engined aircraft. Preliminary training had begun with Halifax aircraft during August when a special conversion flight was sent to Holme-on-Spalding Moor. Here the more experienced crews learned to fly the new aircraft, and then themselves acted as instructors for their fellows. This expedient was necessary because existing heavy conversion units were unable to accommodate all of the squadrons then forming or re-arming with four-engined bombers. Two of the Australians trained by this emergency method, Pilot Officer Graham³ and Flight

³ Sqn Ldr G. D. Graham, DFC, AFC, 404910. 460 Sqn, 12 and 550 Sqn RAF. Bank clerk; of Cairns, Qld; b. Beaudesert, Qld, 18 Jan 1910.

Sergeant Fahey,⁴ also qualified as instructors on Lancaster aircraft and were then detailed as the nucleus of a conversion flight for No. 12 Squadron R.A.F., a task which was completed in the record time of five weeks. Wing Commander Hubbard was posted to No. 1656 Heavy Conversion Unit, handing over command of No. 460 on 1st September to Wing Commander Kaufman.⁵ Wellington operations from Brighton continued with diminishing intensity, because lost aircraft were no longer replaced. When only five Wellingtons remained these were transferred to No. 142 Squadron R.A.F. Two months then passed before No. 460 was ready to operate again because it was decided to discontinue Halifax training and to equip the squadron with Lancasters. This was a decision very popular with the aircrews, as the Lancaster had speed, ceiling range and bomb load superior to any night bomber then in use, and it was obvious that the backbone of the main force would ultimately consist of this type. Three fatal crashes during air-firing and bombing tests marred the period of conversion but nevertheless No. 460 had reached a high degree of proficiency in ground and air work by the end of October, and all ranks looked forward with confidence to a return to operations. The squadron was at last predominantly Australian, and although on 23rd November Kaufman was forced through illness to relinquish his command, another Australian, Wing Commander Dilworth,⁶ who had already won the confidence of crews as flight commander, was immediately available to replace him.

Although for two months the only Australian contribution to the bombing offensive lay in the efforts of individuals, the winter of 1942 saw a notable increase in the nominal size of the R.A.A.F. within Bomber Command. Two new main-force squadrons and one light-bomber squadron were formed and all began to operate late in this period. These new formations were less Australian in character than had been the earliest-formed squadrons. The only ground crews sent to England during 1942 had gone direct to No. 10 Squadron, while Nos. 452, 457 and 458, on proceeding overseas from Britain during that year, had been given ground-crew backing as completely Australian as possible. There remained approximately 1,100 ground crew members in Britain but these were already absorbed by Nos. 10, 455, 460 and the growing needs of the Overseas Headquarters. Consequently only a few tradesmen were available to the new squadrons. This difficulty had been foreseen, but it was a great disappointment that apparently few R.A.A.F. aircrews could at first join these units. The number of Australians in Bomber Command had grown rapidly during 1942 despite heavy casualties, but only five men were available for No. 466 and twenty-nine for No. 467 before they came into the

⁴ F-O F. F. Fahey, AFM, 406352. 12 Sqn RAF, 460 Sqn, 627 Sqn RAF. Miner; of Wiluna, WA; b. Fremantle, WA, 20 Nov 1912. Killed in action 6 Jan 1944.

⁵ W Cdr K. W. Kaufman, DFC, 39464 RAF, 257415, 214 and 142 Sqn RAF; comd 460 Sqn 1942-43. Regular air force offr; of Preston, Vic; b. Ascot Vale, Vic, 4 Mar 1915.

⁶ W Cdr J. F. Dilworth, DFC, 40044 RAF, 101 Sqn RAF; comd 460 Sqn 1942-43; 576 Sqn RAF; comd 100 Sqn RAF 1943-44. Regular air force offr; of Sydney; b. Bondi, NSW, 14 Oct 1914. Killed in action 25 Feb 1944.

line during January 1943. This anomalous position was caused in part by the cessation for four months early in 1942 of trainee drafts from Australia. Bournemouth had been cleared of Australians by the end of June, and these men, after advanced training, had all reached squadrons whose commanders were reluctant to release them once they had settled down. The Australian Air Board had indeed compensated for the interrupted flow of aircrew by doubling the size of contingents which reached England during the latter part of the year, but these men had to wait their turn for vacancies at O.T.U.'s. By 31st December 1942 there were 1,320 Australians at Bournemouth awaiting posting, and, at the very time when the new *Article XV* squadrons were preparing for action, relatively few men were leaving the O.T.U.'s.

Events thus continued to prevent realisation of the Australian desire for truly national units. Furthermore the expressed wish of the Air Board that squadrons performing the same duty should be located close together and should be equipped with the same type of aircraft, could not at that time be fulfilled. No. 460 was part of No. 1 Group but when Squadron Leader Bailey⁷ was posted from that squadron to form No. 466 with Wellington aircraft, his new unit was based at Driffield, Yorkshire, in No. 4 Group. Relatively few Australians were at this time in No. 4 Group, but when No. 466 moved to near-by Leconfield on 27th December to begin operations, it was one of the least Australian squadrons (except in name) in the whole group. The number of R.A.A.F. aircrew members had risen only to eight (5 per cent) by March 1943, and the first Australian missing on operations was not lost until mid-April. Similarly No. 467, although equipped with Lancasters, began to form early in November at Bottesford, Leicestershire, in No. 5 Group. In this case the first commanding officer was not an Australian and throughout the winter of 1942 the R.A.A.F. aircrews represented only 16 per cent of the full complement. Wing Commander Gomm⁸ of No. 467, however, equally with Bailey of No. 466 worked extremely hard to make his unit efficient and the ultimate aim, although often delayed, was to make the squadrons fully Australian. Both squadrons began operations early in January with two mine-laying raids, but they then entered fully into main-force activities on a scale which compared well with that of the more experienced No. 460:

	No. 460		No. 466		No. 467	
	Raids	Aircraft	Raids	Aircraft	Raids	Aircraft
January	10	59	3	22	10	51
February	13	107	9	78	14	71
March	11	115	6	73	12	105
	34	281	18	173	36	227

⁷ W Cdr R. E. Bailey, DSO, DFC, 42093 RAF. 77 Sqn RAF, 460 Sqn; comd 466 Sqn 1942-43, 55 Staging Post and 114 Wing RAF 1944, 238 Sqn RAF 1944-45, 1315 Flight RAF 1945. Regular air force offr; of Leeton, NSW; b. Kogarah, NSW, 15 Jun 1915.

⁸ W Cdr C. L. Gomm, DSO, DFC, 34123 RAF. 77 and 604 Sqn RAF; comd 467 Sqn 1942-43. Regular air force offr; of Curitiba, Parana, Brazil; b. Curitiba, 15 Nov 1913. Killed in action 15 Aug 1943.

This average of seventy-six sorties per squadron during each of the three winter months was a tremendous advance on the previous year when No. 455 had averaged forty-one sorties and Nos. 458 and 460 in the single month of their operations mounted fourteen and thirteen sorties respectively against main targets. Weather was no more favourable, but better-trained crews, radar aids to navigation and more reliable types of aircraft enabled squadrons to operate with confidence in almost any conditions. The meticulously-planned raids introduced during 1942 helped to reduce the problems of winter flying to a minimum. Even No. 466 with its twin-engined aircraft shared in the general increase in effort, although the Wellingtons could not be used against distant targets. Instead Bailey's crews did additional mine-laying duties at this time and twice sent a small group of aircraft on daylight raids against Emden. These latter trips, however, were costly and unpopular, and they were soon discontinued.

The third new R.A.A.F. squadron (No. 464) was a light-bomber unit and began to form late in August in No. 2 Group at Feltwell in Norfolk and was to be armed with Ventura aircraft. The operational training unit preparing crews for this type was located in Canada, and some time was bound to elapse before arrangements could be made to ensure sufficient R.A.A.F. crews. These light-bomber crews consisted of a pilot, navigator, wireless operator and straight gunner only, and they did not require the complex training given to a heavy-bomber crew. There was therefore little opposition when experienced Australian pilots were withdrawn from Boston and Blenheim squadrons and matched with untrained navigators and gunners to undergo local training at Feltwell. Even by this means only 30 per cent of the aircrews were Australian when the squadron was ready for operations in December 1942. The commanding officer, Wing Commander Young,⁹ was a South African, and although Iredale had joined the squadron on 1st September as a flight commander he was posted away as an instructor on the 27th and was replaced by an Englishman.

Air Marshal Williams (Air Officer Commanding R.A.A.F. Overseas Headquarters) was very disappointed at this complete lack of orderly development of Australian effort within Bomber Command. Of the four titular R.A.A.F. squadrons only one (No. 460) was even predominantly Australian, and moreover one squadron was in each of four groups. Williams accordingly proposed to the Air Board a system of rationalisation by which Australians could be concentrated effectively within Bomber Command. His plan recognised that the most urgent requirement at this period was reinforcements of ground staff. This was a greater factor in the limitation of expansion and flexibility of Bomber Command than the shortage of aircraft and aircrews. Excluding Nos. 3 and 10 Squadrons for which special provisions were made, there were in Britain and the

⁹ Gp Capt R. H. Young, CBE, DSO, AFC, 32215 RAF. 63 and 110 Sqns RAF; comd 464 Sqn 1942-43, RAF Stns Methwold and Feltwell 1943, Mildenhall 1943-44, Finningley 1944-45. Regular air force offr; of Johannesburg, S Af; b. Cardiff, Wales, 9 Jun 1910.

Middle East only 1,794 Australian ground staff to meet the requirements of *Article XV* squadrons which by November 1942 had risen to 5,000 men of all trades. The British manpower pool, already overstrained, thus had to supply 3,200 or 60 per cent of the direct ground-staff requirements of titular R.A.A.F. squadrons, besides providing all the backing for station, group, command, training, supply and domestic organisations, without which the squadrons could not have operated at all. Under such circumstances there was bound to be passive resistance or blindness to Australia's nationalist policy where it conflicted with the urgent necessity for the R.A.F. to employ every man, be he aircrew or ground staff, in as direct and economical a manner as possible. On the other hand Williams appreciated that before December 1941 the Australian Air Board had intended to man fully all squadrons overseas. The swift Japanese advance southwards during the early months of 1942 had placed Australia herself in great danger, and previous plans were halted in favour of a program to build the R.A.A.F. Home Defence Force up to a strength of seventy-three squadrons. Even in August 1942 the Air Board felt itself able to propose that only five of the partly-manned squadrons overseas should be brought to full strength. This would entail the dispatch of 1,200 men compared with 4,000 required if existing squadrons and others yet to form were manned entirely by Australians. This truncated plan, however, was not immediately submitted to the Australian War Cabinet when, on 11th December, Williams cabled from London asking for a revision of aims:

General manpower position here under very close examination and it is clear that the air striking power is limited.

You might expect an approach to be made to the Commonwealth Government as to possibility of providing ground personnel for R.A.A.F. squadrons thereby adding to the force available to that extent.

Identification of these units with Australia, and the general recognition of Australia's war effort is much more definite if squadrons are manned completely by Australian personnel.

Information available here and from Washington indicates that prospects of obtaining aircraft for development of the 73 squadron programme are remote, and it is apparent that policy of USA is to keep air striking power in form of heavy bombers with transport units to ensure mobility in its own hands.

Consequently it appears that prospects of RAAF getting experience of heavy type aircraft must be through working with RAF which, incidentally, possesses best of such types.

You may believe that present position and USA proposals for 1943 may allow you to consider whether it would be to Australia's interests both national and service to man these squadrons as part of the main striking force, and get experience of heavy types which no doubt later will move east against the common enemy in the Pacific working from India with the RAF instead of from Australia with US Forces.

... It will be remembered that squadrons manned here will be at United Kingdom expense, and if you have recruited personnel for 73 squadrons there would be some financial relief this way.

This appreciation was considered by the War Cabinet on 11th January 1943 but there was general agreement that "no further commitments could be undertaken for the provision of personnel for service overseas". Even

the Air Board's alternative proposal to send only 1,200 men clashed directly with an urgent appeal from the army for 1,118 tradesmen, and it was impossible to satisfy both demands. The matter was referred to the manpower sub-committee of the War Cabinet which reported on 22nd January that as the war production program required 35,000 men and women each month, of whom only 10,000 appeared to be available, Australia was in no position to send men overseas unless an even more drastic cut was made in industry. Accordingly on 10th February the Air Board cabled Williams:

War Cabinet has decided in view of manpower situation no further RAAF ground staff are to be dispatched for service overseas with EATS squadrons.

Williams was meanwhile pursuing a secondary plan to achieve definition of R.A.A.F. effort. Without full ground-staff backing Australian squadrons scattered among many different commands could not hope to become an easily-identified force. Williams proposed therefore to concentrate on the main R.A.F. need, and to place as many Australians as possible into Bomber Command, where all the *Article XV* squadrons yet to be formed would be located. This would give a significant nucleus and perhaps permit the creation of a coherent R.A.A.F. group analogous to No. 6 (Canadian) Group of Bomber Command which came into existence on 1st January 1943. Accordingly on 28th January he cabled to the Air Board:

Following principle of getting as many RAAF squadrons as possible together in one Bomber Group and especially as no heavy bomber aircraft are being allotted from US production Nos. 463 and 465 Squadrons will not be formed as Catalina squadron in India and Typhoon squadron here respectively, but as heavy bombers in the United Kingdom.

Air Ministry agrees that bomber squadrons in the United Kingdom be located at selected stations and within a selected Bomber Group of the RAF.

At present No. 464 recently formed is armed with Ventura for which OTU is carried out in Canada with result that it is almost impossible to maintain as an RAAF squadron and aircrew losses are already being replaced by Canadians.

Similarly No. 462 Squadron is armed with Halifax in Middle East and although formed for over six months there is only one RAAF aircrew member in the whole squadron.

Suggest it would be better from every point of view and recommend you agree that these squadrons be renumbered as squadrons of the RAF, and that RAAF squadrons be re-formed later as heavy bomber squadrons in the United Kingdom.

This suggestion was approved by the Air Board on 2nd February, and a number of senior officers, headed by Group Captains Wilson¹ and Heffernan,² was sent to England to provide commanders for the proposed new squadrons, or to become staff officers of the R.A.A.F. group should it be formed. On 3rd March Williams informed the Air Ministry:

¹ Air Cmdr D. E. L. Wilson. Comd RAAF Sqn Richmond 1939-40, HQ Central Area 1940, 2 Training Gp 1941-42; AOC NW Area 1942; comd 1 Training Gp 1942-43, RAF Stns Wyton and Lynton-on-Ouse 1943. Regular air force offr; of Sydney; b. Berowra, NSW, 1 Dec 1898. Died 2 Aug 1950.

² Gp Capt P. G. Heffernan, OBE, AFC, 43. Comd 1 Sqn 1939, 8 Sqn 1939-41, 4 SFTS 1941-42, RAAF Stns Richmond 1942 and Pearce 1942-43, 27 OTU RAF 1943-45. Regular air force offr; of Melbourne; b. Bowenfels, NSW, 16 Apr 1907.

I have now to suggest that both Nos. 462 and 464 cease to be squadrons of the RAAF and be re-formed later as heavy bomber squadrons in the United Kingdom within a selected Bomber Group.

At the same time he proposed that No. 455 Squadron operating in Coastal Command with obsolescent Hampdens, be similarly disbanded and transferred to Bomber Command. Had all these moves been promptly effected there would have been eight R.A.A.F. heavy-bomber squadrons, which could be elevated into a group. Crews leaving O.T.U's and heavy conversion units feeding such a group would have been appointed under Australian direction among R.A.A.F. and R.A.F. squadrons. With such a definite object in view it would also have been possible to direct the flow of Australians from Bournemouth and from advanced flying units into the correct O.T.U's so that they arrived in adequate numbers on Australian squadrons. There were, however, great obstacles to this plan. Other commands and groups were reluctant to lose any of the resources of squadrons actually existing, while it was impracticable for the Air Ministry to provide complete ground crews for five new heavy-bomber squadrons in time to satisfy Australian hopes. Canada was providing full ground staffs and planned to produce aircraft, bombs and other equipment as well as to assume financial responsibility for her squadrons and was thus able to command full support for her national aspirations. Australia was in no position to offer any of these positive aids to the R.A.F. and Williams' plan remained in abeyance. No squadrons were transferred to Bomber Command nor any new squadron formed before November 1943. The four existing squadrons were not brought together into one group and remained nebular stars in the Bomber Command firmament.

These attempts to concentrate Australian effort evoked little interest from the majority of war-time fliers. For them the war had become an intensely personal struggle, and they identified themselves with their individual commands rather than as part of a separate contingent. They were proud to be Australians but most preferred the wider brotherhood-in-arms to the intense national outlook of a R.A.A.F. squadron. Bennett, while commanding No. 10 Squadron R.A.F., had explained this reaction in a broadcast talk:

Before I took command of this unit I used to think how pleasant it would be to have a squadron composed entirely of Australians. I was wrong. In my present unit, the mixture of personnel from the whole of the British Empire produces the grandest combination of happiness, efficiency and competition, and also drives home to all of us that the grandest thing of all is to be British. To be a Briton, an Australian, a Canadian or a New Zealander, is grand for competitive purposes . . . and coupled with this feeling there is a tremendous enthusiasm and keenness combined with a very serious appreciation of our aim and object at all times.

This pervading spirit of one-ness was a natural product of the conditions of air warfare in which individuals trained as specialists were banded into small groups in desperate enterprises, and chances of survival often depended on the utmost unity of purpose. This was especially so in Bomber Command where from all causes each squadron lost an average

of 10 per cent of its actual fighting men each week and there was little opportunity to develop the corporate unity common in an army battalion or a naval crew.³ On their bi-weekly bombing trips, with all the hazards that weather and a powerful, well-equipped enemy could impose, many Australians drew comfort and reassurance from the fact that their companions came from many different countries, were widely different in opinion, upbringing and talents, but that, now suspended in space and wrapped in darkness, all had no thought except the best fulfilment of the common task. This intense crew feeling was heightened by realisation that although apparently isolated, hundreds of aircraft around them in the invisible bomber stream were being directed with the same careful attention to detail. This spirit made itself felt far outside the operational commands, and, aided by the natural impatience for action among trainees, it ensured a ready flow of men of all nationalities into Bomber Command. Casualties in Coastal and Fighter Commands were now light, their turn-over and expansion called for relatively few men, and henceforth most Australians operating from Great Britain were to be absorbed by Bomber Command.

After the summer of 1942 night-bombing was regarded by most airmen in the same manner as most Germans regarded the U-boat campaign. It was the one positive weapon which could materially weaken the enemy in preparation for a final military campaign. The significance of U.S.A.A.F. daylight precision bombing, then in its infancy, was not overlooked, but it was the remorseless nightly and ever-mounting assault by Lancasters and Halifaxes which captured popular imagination. Bomber Command could have engaged in mass daylight raids only by seriously reducing bomb loads in favour of heavier defensive armament (not then designed) and by retraining crews to fly in tight formations which could provide mutual fire power against enemy cannon-fighters.

The sneak dusk attacks by Wellingtons against fringe targets were opportunist and deeper penetration into enemy territory was possible only by using routes ill-defended by the enemy. Thus the successful raid by Lancasters against Le Creusot on 17th October was followed a week later by a surprise raid mounted by No. 5 Group, when eighty-eight Lancasters flew 1,700 miles in daylight to bomb Milan. Many individual R.A.A.F. airmen flew on this raid but the main Australian interest in daylight bombing attacks necessarily centred on the activities of No. 464, which with two other Ventura Squadrons, No. 21 R.A.F. and No. 487 R.N.Z.A.F., had completed crew and formation training by the end of November. The Ventura Wing stood by for a week awaiting an important attack on the Philips radio factory at Eindhoven in Holland, one of the principal targets detailed in the directive of 13th March 1942 concerning key factories in German-occupied territory.

³ Casualties, sickness, completion of operational tours and withdrawal for specialist courses were the main causes of this phenomenal turnover. Promotions and the commissioning of airmen also frequently entailed a posting to another unit.

Eindhoven lay well within the German fighter zone, only fifty miles from the Ruhr. Complete fighter support as for previous Ramrod and Circus operations was impracticable and success depended on the speed of the Mosquitos, Bostons and Venturas selected for the task, and in the faultless execution by all crews of the main flight plan. Crews were briefed early on 5th December but the operation was cancelled at the last moment because of an unfavourable weather forecast. Conditions had not improved on the following day but Wing Commander Edwards, V.C., whose dash and inspiring leadership were ideal for this enterprise, set off during the morning leading ninety-four bombers. The Bostons were in the van, then came the Mosquitos, and lastly the three Ventura squadrons carrying incendiary bombs. At times visibility was reduced to one mile in rain squalls, and cloud lay as low as 200 feet above the ground but the whole force proceeded at very low level and navigated successfully to the target. Young was leading the Ventura section which met considerable opposition from enemy gun fire, losing one aircraft shot down by a light coastal battery and another shortly afterwards as the formation swept across a well-defended airfield. Two aircraft of No. 464 were severely damaged before reaching Eindhoven, but although one, with five feet of its mainplane shot away, was forced to retire, the other flown by Pilot Officer Abbott,⁴ continued its task with a damaged port engine. The Venturas reached the target at 12.40 p.m. and bombed from low level, despite well-directed fire from defence posts alerted by the Boston attack ten minutes previously. Three Australian Venturas were shot down at this stage, and all the others fought their way back damaged either by gun fire, or by seagulls and ducks, encountered in flight, which crashed through perspex windows or the wing fabric. From the whole force thirteen aircraft were lost, but the cost, though high, was not prohibitive in relation to the damage resulting from this attack. The Philips factory supplied one-third of all radio valves manufactured under German control, and much of the delicate equipment and finished products was wrecked first by explosives and then by incendiary bombs, which caused an inferno in the valve-testing shops and other buildings. This sharp concentrated blow was especially effective because only minor damage was done to civilian property and the raid served as a symbol to intensify passive resistance of Dutchmen towards the local German administrators.

The Eindhoven raid was an exceptional enterprise which could not easily be repeated at this period, and the light bombers of No. 2 Group reverted to their former tasks of attacking fringe targets of tactical importance—marshalling yards, electricity and transformer stations, docks and airfields. These attacks were made by relatively small numbers of bombers, escorted by numerous fighters which took every opportunity of engaging enemy fighters sent up to oppose these harassing raids. The Circus operations required only brief penetration of enemy territory and were normally

⁴ F.O. S. C. B. Abbott, DFC, 400404. 88 Sqn RAF, 464 Sqn. Clerk; of Moonee Ponds, Vic; b. Melbourne, 25 Feb 1921. Killed in action 9 Aug 1943.

carried out by one or two squadrons.⁵ On some occasions No. 453 Squadron R.A.A.F. provided part of the escort for No. 464 Squadron, but the number of Circuses flown during this period was so great that it was purely fortuitous that the two squadrons should be jointly engaged in any particular sortie. The Australian Venturas did not join in these activities until January 1943, but thenceforth Circus operations were the main commitment. Occasional air-sea rescue searches were flown, and in addition to a very strenuous training program, the squadron participated in a full-scale army exercise during the first two weeks of March.

TABLE No. 18

No. 464 (VENTURA) SQUADRON

	Target	Total Force		RAAF Force No. 464 Sqn.		Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis- patched	Attack- ing	Disp	Atkg			
1943								
Jan 13	Abbeville A/F	18	18	9	9	13	—	—
Jan 21	Caen A/F	15	12	6	6	10	—	—
Jan 22	Cherbourg A/F	18	11	9	8	12	2	1
Jan 26	Bruges (rail)	12	6	6	6	7	—	—
Feb 2	Bruges (rail)	12	12	12	12	13	—	—
Feb 3	St Omer A/F	12	5	12	5	3	1	1
Feb 26	Dunkirk (shipping)	60	34	24	12*	37	—	—
Feb 27	Dunkirk	24	23	6	6	26	—	—
Mar 18	Maasluis (oil)	12	12	12	12	10	—	—
Mar 28	Rotterdam	24	23	12	12	26	—	—
Mar 29	Rotterdam (shipyard)	49	45	12	12	50	—	—
Mar 29	Abbeville M/Y	12	6	6	6	7	—	—
Apr 4	Caen A/F	25	24	12	12	23	—	—
Apr 4	Rotterdam (shipyard)	24	23	12	12	25	2	1

⁵ Each sqn, subject to serviceability state, provided 2 standard "boxes" each of 6 bombers.

TABLE NO. 18—*continued*.

No. 464 (VENTURA) SQUADRON

	Target	Total Force		RAAF Force No. 464 Sqn.		Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis- patched	Attack- ing	Disp	Atkg			
Apr 13	Abbeville M/Y	12	12	12	12	11	—	—
Apr 16	Ostend	13	12	12	12	10	—	—
Apr 17	Caen M/Y	12	12	12	12	11	—	—
Apr 20	Cherbourg (ship)	12	12	12	12	13	—	—
May 2	Ijmuiden (steel works)	12	12	12	12	13	—	—
May 4	Abbeville M/Y	12	11	12	11	11	—	—
May 16	Morlaix A/F	12	12	12	12	13	—	—
May 29	Caen A/F	12	11	12	11	11	—	—
May 31	Zeebrugge (coke ovens)	12	12	12	12	10	—	—

*2 sqns sorted twice as cloud prevented an effective attack earlier in the day.

A/F—Airfield

M/Y—Marshalling yard (railway)

In daylight attacks against fringe targets (see Table No. 18) the Venturas flew in close formation across the English Channel at low level to avoid detection by enemy radar and then climbed quickly to their bombing height of 10,000 feet, swiftly diving again to sea level after the attack and leaving their escort to prevent any pursuit. Reference to the bombing table will show that actual losses were light (1.2 per cent of sorties) on these tip-and-run raids, but on many occasions some of the aircraft were badly damaged although they returned safely. The Ventura, although it endeared itself to aircrews because of its apparent ability to sustain heavy material damage and yet still fly, was not an outstanding success as a daylight bomber. It was too slow and not sufficiently well armed to withstand enemy fighter attack. This was emphasised disastrously on 3rd May when eleven aircraft from No. 487 set out to attack Amsterdam, failed to rendezvous with fighters of No. 11 Group and lost all except one of their number in a battle with FW-190's. Operating conditions at Feltwell were poor, the runways turning into seas of mud after heavy rains, and great relief was felt when No. 464 moved on 3rd April to Methwold. By this time, however, the former duties of No. 2 Group

were passing more and more into the hands of the U.S.A.A.F. The project of a separate tactical air force had been advanced considerably by the "Spartan" exercise with army units during March and it was no surprise when on 1st June the squadron was informed that it had been transferred, together with all No. 2 Group, to Fighter Command, as the first step towards the creation of a tactical air force. Separate control of fighters and bombers had previously hampered planning, but the Australians now looked forward to their new duties with confidence. Little had been done to increase the number of R.A.A.F. aircrews; Wing Commander Meakin⁶ had replaced Young on 27th April and both flight commanders were still Englishmen; but a change in location and also a change in aircraft was foreshadowed, and the general spirit of the squadron was high.

Two squadrons (Nos. 105 and 139) equipped with Mosquito bombers, which had a tactical freedom because of their speed and range, continued to fly deep into enemy territory during the months when Bostons and Venturas hammered at coastal targets. This tiny force which owed much of its development to Wing Commander Kyle and which had been proved in action by Edwards contained from the outset a significant sprinkling of Australians. Edwards left No. 105 on 10th February 1943 to become station commander at Binbrook where No. 460 was based, but Squadron Leader Blessing⁷ remained as flight commander and proved to be an exceptional leader. He had accompanied Edwards on the Eindhoven raid and his courage, intelligence and almost intuitive sense of tactical situations were shown in attacks against Copenhagen, Paderborn, Nantes, Bordeaux and Jena. In each case the target (diesel workshops at Copenhagen, railway maintenance facilities at Paderborn and Nantes, optical glass factories at Jena) was relatively small though of great importance to enemy war industry. They lay in non-industrial areas, and the normal night obliteration attack would have been uneconomical; one 500-lb bomb dropped accurately from low level was more effective in such circumstances than a 4,000-lb bomb falling even quite close to the target. All the raids were successful in inflicting heavy damage, but the force was too small to destroy each target. The Mosquitos, however, forced the Germans to disperse defences over wide areas, creating the same nervous tension in the air that commandos did in the military sphere.

The attack on Jena on 27th May was a magnificent feat of navigation for it involved a flight of almost 1,000 miles at extremely low level, and at a speed when ground detail was difficult to identify. Seven Mosquitos of No. 139 were to attack the works of Schott and Genossen, while Blessing led seven of No. 105, including two flown by Flying Officer

⁶ W Cdr H. J. W. Meakin, DFC, 83280 RAF. 53, 88 and 82 Sqns RAF; comd 464 Sqn 1943-44; W Cdr (Flying) 138 and 140 Wings RAF 1944-45. Road transport engineer; of Putney, Eng; b. Repton, Derbyshire, Eng, 29 May 1916.

⁷ Sqn Ldr W. W. Blessing, DSO, DFC, 404648. 13, 105 and 109 Sqns RAF. Salesman; of Braidwood, NSW; b. Glen Innes, NSW, 2 Oct 1912. Killed in action 7 Jul 1944. A brother, Sgt (pilot) W. G. Blessing, was killed in action on 15 Jun 1942 in operations covering a Malta convoy.

Dixon⁸ and Pilot Officer Herbert⁹ against the main Zeiss factory. The whole formation successfully broke through the Dutch coastal defence zone; two aircraft were lost near Helminghausen and a third had to return to base; the remainder then ran into very bad weather with cloud down to ground level just as the route passed through hilly country. All persevered, however, despite the obvious dangers, but nevertheless the formation was split up and only three aircraft of each squadron were in contact when they broke cloud near Jena. These flew up the last valley in bad visibility and were suddenly confronted with a balloon barrage which had not previously been reported. No. 139 turned aside to attack the Schott factory on the outskirts of the town but Blessing flew directly through the balloons and dropped his bombs on the Zeiss works. Herbert attempted to skirt the balloon barrage by flying up the mountainside, but he ran into gun fire so he turned through the balloons to attack the glass-grinding factory in the centre of Jena, its sixteen-storey building presenting him with a conspicuous landmark. Dixon, who had lost contact in cloud, found Jena and bombed a factory on the outskirts in time to withdraw with the others.

It will be seen that between August 1942 and May 1943 there was thus in the operations of No. 2 Group a faint echo of the bombing policy advanced at the beginning of the war. Individual key objectives in the enemy economy were the targets and the method employed was identification of the precise aiming point by each crew. The Eindhoven raid was only possible because No. 2 Group believed that in the Boston, Ventura and Mosquito aircraft which had by this time entirely replaced the Blenheims, it at last had aircraft which could withstand enemy fighter attack so that bombers would once more have tactical freedom of action. Had this point been more conclusively proved there might indeed have been some swing in official bombing policy. The raid, however, failed to achieve this and in fact it was apparent that the Boston and Ventura were really no more capable of breaking through enemy defences than, in earlier circumstances, had been the Blenheim. Only in the Mosquito, which like the Lancaster, was the enormously-successful result of an improvised design, was there any hope of successful action of this kind, and in numbers they were too few to mount alone other than small-scale raids. There was accordingly nothing in the light-bomber raids, as there had been nothing in the Augsburg or Le Creusot raids, to shake the utter confidence which the aircrew and planners of Bomber Command, the Air Ministry and the general public undoubtedly placed in area bombing at this time. That the potential value of the Mosquito was appreciated by Bomber Command is shown, however, by the fact that when in May 1943 it shed its light-bomber squadrons,¹ it retained the two Mosquito squadrons, although for ancillary rather than direct bombing use.

⁸ Sqn Ldr D. C. Dixon, DFC, 401089; 105 Sqn RAF. Leather merchant; of Brisbane; b. Brisbane, 29 Sep 1915.

⁹ F-O H. C. Herbert, DFC, 406036. 21, 18, 106, 105 and 139. Sqns RAF. Clerk; of Fremantle, WA; b. Perth, WA, 14 Jul 1916.

¹ This was according to a policy decision taken two years previously.

The main bombing policy established in February 1942 remained in force but there were large diversions of effort away from purely German targets. In October 1942 the main night-striking force of Bomber Command was directed to attack industrial towns in northern Italy as indirect support for the planned military campaigns in Italy and Algeria. More than thirty raids had been made during the first two years of the war but they had all been on a very small scale and only 270 tons of bombs had fallen on Italy. Italian defences were totally unprepared for this new series of raids in strength by four-engined aircraft. Genoa was hit six times in quick succession, Turin seven times, and Milan once by night and once by day. These fifteen raids employed 1,809 aircraft, and within two months showered on Italy 1,378 tons of high explosive and 1,418 tons of incendiary bombs, more than ten times the previous cumulative total for the whole war. After a brief lull, the Air Ministry ruled on 17th January that Italian targets were to have priority whenever the weather permitted. Accordingly two more heavy raids followed during February. Australian squadrons took only a minor part in these attacks, joining in only four raids against Turin and one against Milan (Table No. 19).

TABLE No. 19

ITALIAN TARGETS

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1942-43									
Nov 28-29	Turin	228	192	460	10	8	371	1	—
Dec 9-10	Turin	227	196	460	8	8	397	3	—
Dec 11-12	Turin	82	27	460	7	2	60	3	—
Feb 4- 5	Turin	188	157	460 467	4 2	3 1	258	2	— —
Feb 14-15	Milan	142	122	460 467	9 3	8 3	274	2	— —

Except for the great distances involved, attacks against Italian targets presented few difficulties, because the inefficiency of Italian gun, search-light and night-fighter crews allowed Harris to order attacks on moonlit nights. This aided visual recognition of the target and led usually to good marking and effective bombing. On 28th-29th November Australian crews could see bends in the river east and south of Turin clearly illuminated by flares which were well concentrated around the aiming point. Several



(Air Ministry)

Essen, which had escaped lightly from many Bomber Command attacks, received two damaging raids during the nights 5th-6th and 12th-13th March 1943. Many workers' homes and commercial buildings near the Krupps works are shown burnt out after the raids.



(German sources)

Water pouring from the Mohne dam some six hours after the successful attack by No. 617 Squadron, R.A.F., during the night of 16th-17th May 1943. In the foreground are the buoys and chains of an anti-torpedo boom, which had been laid on the other side of the dam wall.



(Air Ministry)

Continuing the Battle of the Ruhr throughout the summer of 1943, Bomber Command attacked Remscheid on the night of 30th-31st July. Among the successes was the destruction of this large machinery factory (Alexanderwerk A. von der Nahmer, A.G.).



(Air Ministry)

After a series of failures at Hanover, Bomber Command successfully attacked this ancient town in central Germany on the night of 8th-9th October 1943; fires consumed large areas, including this section around the main railway station.

crews claimed hits near the main Fiat works, and Pilot Officer Knight-Brown² who had been detailed to make a special late reconnaissance during the attack reported that the centre of the town was well ablaze. There was considerable fighter activity both on the outward and homeward journeys and Sergeant Brooks³ of No. 460 had to beat off four separate attacks before he reached base.

One aircraft was lost in heroic circumstances. Pilot Officer Middleton,⁴ captain of a Stirling aircraft of No. 149 Squadron R.A.F., revealed in the highest possible degree the spirit animating Bomber Command crews, and his conduct truly became part of the traditions of the R.A.A.F. Middleton's aircraft had great difficulty in climbing to 12,000 feet to cross the Alps on the outward journey. He was forced to use excess petrol to achieve height, and this barely left enough for the return flight. However, he determined to continue, and reaching Turin, dived low to 2,000 feet so that he could positively identify his precise target, well knowing that he would have difficulty in regaining height. While making three deliberate runs over the city, the Stirling was hit by anti-aircraft fire. A large hole appeared in the port mainplane which made it difficult to maintain lateral control. A shell then burst in the cockpit, shattering the windscreen and wounding both pilots. A piece of shell splinter tore into the side of Middleton's face, destroying his right eye and exposing the bone over the other eye. He was probably wounded also in the body and legs. The second pilot received wounds in the head and both legs which bled profusely. The wireless operator was also wounded in the leg. Middleton lost consciousness and the aircraft dropped to 800 feet before the second pilot could control it and release the bombs, but Middleton regained consciousness and, when clear of the target area, ordered the second pilot back to the rest station to receive first aid. He himself could see very little and could not speak without loss of blood and great pain, but despite the hazards of an Alpine crossing in a damaged aircraft with insufficient fuel, he grimly determined to make the attempt. The possibilities of abandoning the aircraft by parachute or of landing in northern France were discussed, but Middleton expressed the intention of trying to reach the English coast so that his crew at least would survive and fly again. For himself he knew that his wound and diminishing strength would not permit him to escape from the aircraft unless he did so immediately.

The same stubborn single-mindedness and disregard of any selfish considerations, which had already that night brought him to the target when men less imbued with an absolute sense of duty would have considered returning to base a prudent expedient, did not desert him in this new crisis. For four hours the Stirling staggered and wallowed northwards far behind

² F-O N. H. Knight-Brown, 403348; 460 Sqn. Farmer; of Mt Irvine, NSW; b. Sydney, 30 Dec 1917. Killed in action 26 Oct 1943.

³ F-Sgt H. G. Brooks, 405156; 460 Sqn. Pharmaceutical chemist; of Annerley, Qld; b. Bowen, Qld, 8 Feb 1917. Killed in action 4 Jan 1943.

⁴ P-O R. H. Middleton, VC, 402745; 149 Sqn RAF. Jackaroo; of Yarrabandai, NSW; b. Waverley, NSW, 22 Jul 1916. Killed in action 29 Nov 1942. He was a great-nephew of the early Australian explorer, Hamilton Hume. At the time of this action Middleton carried the rank of f-sgt but subsequently his back-dated commission was gazetted.

the main bomber stream. Middleton, cut off by pain from normal communication with his crew, seemed conscious only of the one urgent necessity to reach friendly territory before the petrol supply failed. Crossing the French coast at 6,000 feet the Stirling was once more engaged and hit by intense light anti-aircraft fire, but the captain mustered sufficient strength to take evasive action and then began the critical flight over the dark, oily waters of the English Channel. The aircraft was so badly damaged and Middleton himself so weak that there was little hope that a forced landing in the sea would be successful, but at length the English coast showed ahead when petrol for only five minutes flying remained in the tanks. Middleton ordered his comrades to parachute to safety while he flew parallel to the shore, after which he intended to head out to sea. Five of the crew landed in England, but the front gunner and flight engineer, who had stayed to assist their gallant captain as long as possible, jumped too late and were both drowned. Middleton himself remained in the Stirling which, at approximately 3.10 a.m. on 29th November, crashed in the sea. His body was washed ashore at Shakespeare Beach, Dover, on 1st February 1943, and he was buried with full military honours.⁵

Little incident attended the moderately-successful raid on Turin on 9th-10th December, but two nights later when a small bombing force tried to attack the same target in very bad weather, each R.A.A.F. crew reported great difficulty in reaching Turin. From No. 460 Squadron only Flight Sergeants Isaacson and Osborne⁶ got through, and unable to see any P.F.F. flares, they bombed independently. Flight Sergeant McDonald,⁷ navigating a Halifax aircraft of No. 102 Squadron, showed exceptional fortitude, ability and leadership during this raid. The aircraft was first damaged by anti-aircraft fire over the target, then suffered ice accretion during the return journey, was menaced by five enemy fighters and finally had both port engines disabled by ground defences in northern France. A proposal to abandon the aircraft was opposed by McDonald, although he was in the best position to parachute, on the grounds that only part of the crew could jump in time. His counter-proposal of a crash-landing was adopted and fortunately the port-inner engine was coaxed into life again. Despite further intense anti-aircraft fire when crossing the French coast, the crippled bomber finally reached Bradwell Bay airfield.

Turin now ranked among the most heavily-damaged industrial cities in Europe. Ninety per cent of Italian automobile production was centred there and nearly every factory of importance had received direct hits. Repairs and renewed construction were delayed by a panic evacuation after the second raid and by poor organisation of the nightly departure into country districts of those workers who did remain in the city. When Bomber Command returned to Turin on 4th-5th February 1943, however,

⁵ For his outstanding gallantry Middleton was posthumously awarded the Victoria Cross.

⁶ F-O A. G. Osborn, DFM, 403678; 460 Sqn. Laboratory assistant; of Raymond Terrace, NSW; b. Raymond Terrace, 9 Jun 1922.

⁷ Sqn Ldr A. MacK. McDonald, DFC, DFM, 401338. 102 and 571 Sqns RAF. Accountant; of Hawthorn, Vic; b. Newcastle, NSW, 4 Aug 1912.

they found that gun and searchlight defences had been greatly strengthened in an attempt to prevent any further catastrophic decline in industrial production. Dummy fires in the outskirts of the city were also seen for the first time, but the Pathfinder red markers were well timed and accurately placed, so that Australian crews had no difficulty in attacking their precise objective, and once again heavy industrial and general damage resulted from widespread fires. This increased defence of Turin, although ineffective, left other cities unprotected, so that ten nights later when the main force attacked Milan in cloudless moonlit weather, there was practically no ground opposition. No. 467 which was detailed to dispatch nine aircraft finally sent only three, as one Lancaster became bogged and blocked the runway at Bottesford. Eleven of the twelve R.A.A.F. crews which did join in the raid found bombing conditions almost ideal, and Milan, a rich manufacturing city and the most important railway centre in northern Italy, became a mass of flames. Fires were seen by Australians when they were 100 miles distant on their return journey. Later reports revealed that damage had been caused to fifty-one factories including the Alfa-Romeo and Caproni aircraft works and the Isotta-Fraschini foundry, all of which were rated as highly-important targets.

Significant as were the successes gained in attacks against Italy, the main task of Bomber Command was still to find an effective method of bombing Germany, upon which the main enemy war effort depended. During the winter of 1942-43 this was complicated by the falling effectiveness of Gee due to enemy jamming, the slow appearance of any reliable marking or blind bombing aid, the help given by bad weather to the enemy passive defences and of natural and artificial haze which obscured targets. The partial successes of Bomber Command during the preceding summer had led inevitably to requests from many quarters that heavy raids be mounted against particular target complexes of special interest to the enquirer. As will be seen below the needs of the Admiralty absorbed a very large proportion of the potential effort of Bomber Command, but many of the varied demands from other bodies had to be refused because they would have entailed uneconomic use of the still-relatively-small bomber force then available. These requests are interesting in retrospect insofar as similarly to the proposals for employing light bombers, there was still in late 1942 a minority opinion which advocated a return to some aspects of the original policy of bombing "spot" targets. Bomber Command certainly believed that this would be a retrograde step in the worst sense. Thus a suggestion originating with the Secretary of State for Air in September 1942 that hydrogenation plants at Politz and Gelsenkirchen be attacked was rebutted. Harris was acutely aware that if his crews were at that time frequently unable to identify entire towns, they could hardly hope to find relatively-small and camouflaged installations in the smoky and hazy atmosphere of the Ruhr valley. He placed little faith in previous attempts made under the "Oil Plan" to damage these and other plants and he wished for no repetition of what he deemed the waste of thousands of sorties with all that these entailed. Most clearly he considered that by

experimentation in area attack Bomber Command had at last achieved suitable methods, and that area targets offered highly-profitable results far beyond the capabilities of his present force to reap the full benefits. He desired as few diversions as possible from what he considered his main and logical task; and in the main his proposition was accepted.

The raids actually launched against inland German targets during the winter months may conveniently be classified under two headings—those against the Ruhr and Rhineland, and those against long-range targets. Apart from the weather difficulty, and preoccupation with target systems outside Germany, Bomber Command's own re-equipment program severely limited the number of aircraft available for these raids. Australian participation was entirely lacking at times and only became prominent towards the end of this period, when three R.A.A.F. bomber squadrons were in full operation.

TABLE NO. 20

ESSEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Jan 4- 5	33	21	460	10	7	57	2	1
Jan 7- 8	22	17	467	5	3	27	—	—
Jan 9-10	52	35	460	4	3	114	3	—
Jan 11-12	76	53	460 467	7 4	5 4	173	1	— —
Jan 12-13	62	48	460 467	5 4	3 2	153	1	— —
Jan 21-22	82	52	467	4	4	179	4	—

(a) *Ruhr and Rhineland towns.* A number of small-scale raids were mounted against Essen (see Table No. 20) during January 1943, more with the object of harassing the Ruhr defence organisations and of providing up-to-date information than with any hope of causing real damage. Mass attack was deliberately postponed until such time as freedom from other duties and the perfection of new pathfinding marking techniques should give Bomber Command a real chance to obliterate what had hitherto proved its most difficult target. R.A.A.F. squadrons flew on six of these nuisance raids.

Only one of these small attacks, that on 9th-10th January, was made in conditions of no cloud and fair visibility. Many crews dropped their bombs short of the target through icing difficulties or when engaged by anti-aircraft defences. Nevertheless photographic reconnaissance did show some new damage in Essen and its industrial suburbs, one steel-making shop at Krupps being three-quarters destroyed. Of forty-three Australian Lancasters dispatched in this series of raids, twelve failed to attack, seven were damaged by intense heavy-calibre gun fire, two were engaged by night fighters and one was lost.

Other raids, more concentrated but less frequent, were made on Duisburg and Dusseldorf with the object of impeding their recovery from previous raids. Thus on 20th-21st December No. 460 provided ten Lancasters in a force of 232 which struck at Duisburg in cloudless moonlit conditions which enabled crews to bomb with confidence. Many fires spread across the town centre and into the dock area, and several factories and warehouses were seen blazing furiously. Enemy fighters were more active than ground defences, but although several Australians were intercepted, all returned safely to Binbrook. On 8th-9th January 1943 a much smaller raid by thirty-eight Lancasters, including two from No. 467, served the purpose of preventing any redistribution of German gun batteries in the Ruhr. Both Australian Lancaster squadrons then joined in two attacks against Dusseldorf dispatching 11 aircraft in a force of 83 on 23rd-24th January, and 11 out of 162 on 27th-28th January. Although visibility above the dense clouds was very good the Australians could not see the target and bombed with the aid of sky markers. These were misplaced on the second raid and the bombs fell wide. On each occasion No. 460 lost one aircraft and on 27th-28th January Pilot Officer Grenfell⁸ had difficulty in evading night fighters which quickly appeared when he was three times coned by searchlights over Holland.

During February the emphasis of this "softening-up" series of raids was switched to Cologne (see Table No. 21).

The first attack was made when Cologne was covered by cloud and smoke and Australian crews gave conflicting reports of bombing accuracy. Reconnaissance photographs revealed only scattered damage in Cologne itself, but the I.G. Farben chemical works at Leverkusen had been hit by bombs falling wide. On 14th-15th February while the Lancasters were at Milan, No. 466 flew with the remainder of Bomber Command to Cologne in bright moonlight. This gave good opportunities for enemy fighters which were out in strength, but watchful crews were able to see them in time to dive into the tops of cloud for protection. Warrant Officer Booy⁹ outmanoeuvred a Ju-88 which twice attacked his Wellington, and his gunners finally drove it off after they had caused an explosion in the fighter. The protective cloud, however, totally obscured Cologne and another sky-marking attack was necessary. No assessment of the damage

⁸ P-Lt K. H. Grenfell, 403735; 460 Sqn. Clerk; of Watsons Bay, NSW; b. Ocean Island, 23 May 1914. Killed in action 30 Mar 1943.

⁹ P-O F. E. Booy, 141711 RAF. 35 and 58 Sqn RAF, 466 Sqn. Of Cheltenham, Glos, Eng; b. Mitcheldean, Glos, 29 Sep 1919.

had been attempted before 26th-27th February when cloudless weather favoured a full-scale attack by Bomber Command. The Pathfinders were ten minutes late in releasing their flares and some of the early main-force arrivals were heavily engaged by anti-aircraft batteries as they circled the city. Some bombed prematurely but although a haze prevented checking of the markers in relation to the aiming point, the later stages of this raid were successful. Concentrated bombing resulted in important damage to commercial and industrial buildings in the southern suburbs and on the west bank of the Rhine, areas which had hitherto escaped lightly.

TABLE No. 21

COLOGNE

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Feb 2- 3	161	137	460 467	5 5	5 5	460	5	— —
Feb 14-15	243	207	466	9	8	513	9	1
Feb 26-27	427	372	460	11	11	1,014	10	—

(b) *Long-distance targets.* The long hours of darkness during winter nights gave the necessary concealment for bomber forces attempting to attack inland German targets beyond the Ruhr. Range, now that more than half the squadrons were equipped with four-engined aircraft, was less of an obstacle, and pathfinding methods would assist the bomber stream by dropping flares to mark important points on the route. The raids against Italy appeared to show that previous difficulties in long-range bombing had been eliminated, but the same degree of success was not achieved against German targets. The first operation by No. 460 Squadron after its conversion to Lancasters was on 22nd-23rd November 1942, when in a raid on Stuttgart it lost one of its eight aircraft accompanying an R.A.F. force of 222 bombers. A novel approach was employed and in bright moonlight the aircraft flew so low that some were just above the crest of the waves and one crew read the time from a church clock tower. Some crews even claimed that while passing over France they saw many inhabitants waving torches skywards and windows of houses thrown open "apparently in an attempt to help bombers pinpoint their track". While it is extremely doubtful that the crews in fact saw anything other than people moving homeward and inefficient blackout precautions,

such reports are indicative of the thoughts and confidence of aircrew at this time. The fervid imagination perhaps implicit in these “readings of the omens” was probably the yeasty reaction of men to a return to operations and to the momentous events in North Africa. The whole Allied cause at last seemed to be on the way back and aircrew took immense pride in the firm belief that they were assisting materially. At the target cloud and haze hindered the bomb aimers, but crews brought back optimistic reports of damage and described the Pathfinder flares as well placed, some Australians checking them with the position of well-known decoy sites in the area. Stuttgart, like Essen, however, was earning a reputation for escaping lightly and subsequent photographs showed little fresh damage except that the roof of the main railway station had been burnt off—a negligible result from 335 tons of bombs and for the loss of ten bombers.

Another disappointing raid was made on Mannheim by 272 aircraft on 6th-7th December. Cloud cover was continuous and the marker flares dropped with the aid of Gee were not very accurately placed. Some Australian crews of the ten dispatched by No. 460 descended below the cloud and claimed to have identified the Rhine before bombing, and these men reported only scattered widespread fires from the main assault.

TABLE NO. 22

BERLIN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Jan 16-17	201	145	460 467	6 10	6 8	367	1	— —
Jan 17-18	187	111	460 467	6 8	6 7	356	22	1 1

A force of 137 bombers sent against Munich on 21st-22nd December again encountered the low cloud over the target which upset so many operations in winter months. The Pathfinders illuminated Wurm See, a lake twenty miles from the city and the main force then bombed at the end of a timed run from this landmark. Seven of the eight R.A.A.F. Lancasters reached the target, which received moderate damage but mostly of a temporary nature only. Opposition at Munich was not severe but on the way the bombers were met by determined fighter attacks. Isaacson was intercepted near Charleroi in Belgium by a Ju-88, and, despite intelligent evasive action, his Lancaster was hit in the rudder and port

wing before he could take refuge in cloud; the enemy fighter was also damaged as it came in very close during its second attack.

After an interval of over a year Berlin (see Table No. 22) reappeared on the list of Bomber Command targets, when raids were made on the German capital on two consecutive nights in January 1943.

Although visibility was good during the first of these raids, the Pathfinder Force had difficulty in pin-pointing en route and near the target because deep snow lay everywhere softening outlines and obliterating expected landmarks. Two R.A.A.F. Lancasters were damaged by anti-aircraft fire, but all reports agreed that enemy ground defences appeared to be weak at first with fire increasing towards the end of the raid. If the enemy had been caught unprepared after such a long lull, this was certainly not the case on the following night when both in the air and from the ground the bombers had to face determined and powerful opposition. Dilworth reported seven separate encounters with fighters and another Lancaster of No. 460 met five night fighters flying in loose formation at one point on its homeward journey. Another crew whose Lancaster was badly damaged by gun fire baled out as soon as they reached the English coast. This interference and difficulties in navigation again led to scattered bombing, damage being confined to isolated incidents as at the Lorenz radio works and the Borsig Rheinmetal armament works.

TABLE No. 23

HAMBURG

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Jan 30-31	148	92	460 467	4 7	2 6	315	5	— —
Feb 3- 4	263	126	460	9	6	344	16	—
Mar 3- 4	417	344	460 466 467	11 11 10	9 10 9	913	10	— — —

The attrition of German industrial capacity by assaults on inland cities was the main but by no means the only task confronting Harris. At the Casablanca conference in January 1943 the Combined Chiefs of Staff intimated that a solution of the U-boat menace was a prerequisite of plans for eventual military re-intervention in Europe. Accordingly at the direct request of the Admiralty a new series of attacks was made against the

north German ports where enemy submarines were built or fitted out. Hamburg (see Table No. 23) with its complex of Blohm and Voss submarine yards, was the most important of these targets within range,¹⁰ and Australian squadrons joined in three raids against this port.

On the first occasion heavy cloud en route and icing conditions forced a third of the attackers to turn back before reaching Hamburg and many of those who struggled on to bomb did so with their air speed indicator or other instruments frozen. This was the first raid in which the Pathfinder aircraft employed H2S, the new radar position-finding aid, and despite the difficulties of the main force a good proportion of bombs dropped did fall in the harbour area. On 3rd-4th February even more atrocious weather conditions had to be faced and this time fewer than half the

TABLE No. 24

WILHELMSHAVEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Feb 11-12	177	137	460 467	9 4	9 2	421	3	— —
Feb 18-19	195	181	460 467	7 7	7 7	596	4	— —
Feb 19-20	338	302	466 467	10 5	10 5	783	11	— 2

bombers reached Hamburg. All the crews from No. 460 Squadron had difficulty in keeping to their flight plan. They arrived to find the city completely blotted out by dense turbulent clouds whose tops extended upwards to 19,000 feet. As a result bombing was largely by guesswork, but three submarine slips in the Blohm and Voss yards were badly damaged. The final attack, this time in much greater strength, came a month later. In good weather Australian Lancasters and Wellingtons came over the target well on time but found the target-indicator bombs scattered over a wide area. Very little damage was done in Hamburg itself, the main weight of bombs falling well west of the true aiming point. A lubricating oil plant at Wedel was put out of action.

February 1943 also saw four raids on Wilhelmshaven (Table No. 24) although the R.A.A.F. squadrons joined in only three.

¹⁰ The U-boats were mostly fitted out and underwent trials in the Baltic. At this time it was impracticable to bomb them there but instead their training areas were regularly mined by small forces from Bomber Cd.

Flying conditions were still bad on 11th-12th February, but the shorter journey and less deep penetration involved encouraged more crews to persevere despite the difficulties. Bombing was done with the aid of sky markers, hitherto a not very successful method, but on this occasion the city's main ammunition dump was hit and this explosion devastated 120 acres. The following two raids, though flown in much better weather, added little significant damage for on both occasions the target marking and consequently the bombing was widely scattered. Little positive incident was recorded by Australians on any of these flights except the last when night-fighter activity was marked. A Wellington of No. 466, though itself set on fire in the bomb aimer's compartment, succeeded in shooting down the Me-110 which attacked it. On 21st February the United States Air Force made a daylight attack on Wilhelmshaven and as a result of the whole series of raids it was estimated that delays of up to twelve months would be caused to the construction of submarines there.¹

Two nights after their final attack on Wilhelmshaven Nos. 460 and 467 Squadrons sent fifteen out of 143 R.A.F. heavy bombers to Bremen. Once again bombing was necessarily done with sky markers above unbroken cloud and hardly any bombs fell on the town. No aircraft were lost but many, including one Lancaster from No. 467 Squadron, were damaged by well-directed ground fire.

These bombing attacks on German ship-building ports could only affect the number of U-boats due to come into operation in nine to twelve months' time. Bomber Command was also required to help resolve the immediate danger from the U-boat fleet then operating in the North Atlantic. Unless Allied shipping losses in this area could be curtailed there was little hope of effecting the speedy build-up of United States Army Air Force and United States Army strength in the United Kingdom, so necessary to plans for the final defeat of Germany. Since early in 1941 there had been considerable pressure from the Admiralty and Coastal Command for heavy attacks on the five main French Biscay ports, where nearly all German and some Italian operational submarines were based.² Political expediency and Bomber Command's urgent attention elsewhere had previously led to the rejection of this plan, but now, on 14th January, Bomber Command was ordered to give Lorient, St Nazaire, Brest and La Pallice "maximum scale of attack at night with the object of effectively devastating the whole area in which are located the submarines, their maintenance facilities, and the services, power, water and light, communications, etc. and other resources upon which their operations depend". The task was very unpopular with Bomber Command since, with the bombs then available, there was little hope of fracturing the immensely strong underground shelters built for the U-boats by Organisation Todt. Many crews expressed the view that if towns were to be obliterated they should

¹ This estimate was optimistic, although apparently borne out by photographic evidence later in 1943. The fallacy was not exposed until the full implication of the enemy prefabricated U-boat program was realised in 1944.

² Twenty German U-boats were normally based in Norwegian ports and another twenty in the Mediterranean.

be German towns and not French. Despite these protests, the campaign was ordered, and, although Brest, Bordeaux and La Pallice were left undisturbed, attacks on the other two ports nominated amounted to 20 per cent of the total effort of Bomber Command during the first three

TABLE No. 25

FRENCH TARGETS

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943									
Jan 15-16	Lorient	147	130	466	4	3	301	2	—
Jan 26-27	Lorient	156	122	460 466	3 10	2 9	181	2	1 —
Feb 4- 5	Lorient	128	120	466 467	9 2	9 2	205	1	— —
Feb 7- 8	Lorient	323	294	460 466 467	8 7 4	8 6 4	760	7	— — —
Feb 13-14	Lorient	466	422	460 466 467	9 11 7	9 11 7	1,103	8	— — —
Feb 16-17	Lorient	377	360	460 466 467	9 8 5	9 8 5	987	2	— — —
Feb 28- Mar 1	St Nazaire	437	409	460 466 467	13 12 10	13 11 10	1,120	5	— — —
Mar 22-23	St Nazaire	357	279	460 467	8 10	8 10	906	1	— —
Mar 28-29	St Nazaire	323	295	466	16	15	667	2	—
Apr 2- 3	St Nazaire	55	49	460 467	5 3	5 3	166	1	— —

months of 1943. In daylight the ports were also attacked by the U.S.A.A.F. The Australian squadrons joined in six of nine heavy night raids on Lorient, followed by four on St Nazaire (see Table No. 25).

These attacks were nearly all made in clear visibility, and although some enemy aircraft were sighted on various raids there was no large scale

attempt at fighter interception. Anti-aircraft fire was usually only moderately intense and there appeared to be few searchlights defending the Biscay ports. Accordingly Pathfinder crews had every opportunity to lay their target indicators unhurriedly and in relation to known landmarks, while main-force aircraft could bomb deliberately. Only one R.A.A.F. bomber was lost on these duties out of the 173 dispatched, and the only real difficulty reported by crews was icing at various levels during their sorties. Extremely heavy damage was done at both ports, many Australians securing flashlight photographs of their bombs hitting the aiming point—but nevertheless the ultimate target, the U-boat pens, remained unscathed as had been forecast. On 6th April 1943, the Air Ministry directed that French ports were no longer to be subjected to full-scale attack, but only light harassing attacks by night.

Though failing in their main objective, the heavy attacks on Lorient and St Nazaire indirectly contributed to the outstanding defeat of the U-boat at sea by Coastal Command aircraft. Constant danger and inconvenience had a demoralising effect on German sailors supposedly resting in port to prepare for the heaviest offensive yet launched against Allied shipping in the Atlantic. The ever-mounting number of mines laid by Bomber Command outside these same ports had the same effect on all except the most stout-hearted U-boat crews. Although Harris was very pleased to be rid of this commitment, the campaign was of subsidiary benefit to aircrews insofar as it demonstrated once again how severely a town could be devastated by a well-directed, well-timed attack in force. The Australian squadrons entered into the spring air offensive against Germany in better heart because they had learned lessons from these comparatively easy raids.

CHAPTER 18

THE RADAR BOMBING OFFENSIVE, 1943

AT the Casablanca conference in January 1943 President Roosevelt and Mr Churchill re-affirmed that war against the European Axis partners was to have priority in all Allied effort. Since to defeat Germany it would still be necessary to invade in force the continent of Europe, the prerequisites were the building up in Britain of a large military force and the concurrent weakening by all available means of enemy armed strength. The first of these essentials depended on the defeat of the German U-boat campaign, but the second could only be achieved at that time from Britain by a vigorous air bombardment.¹ Accordingly on 21st January the Combined Chiefs of Staff issued a directive to shape the Anglo-American bomber offensive from bases in the United Kingdom. This reached the headquarters of Bomber Command on 4th February and stated that the main Allied aim was:

Primarily the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining of the morale of the German people to a point where their capacity for armed resistance is fatally weakened

Subject to weather and tactical considerations targets to be attacked were:

- (a) Submarine construction yards.
- (b) The aircraft industry.
- (c) Transport.
- (d) Oil plants.
- (e) Other targets in war industry.

Furthermore, Berlin was to be attacked periodically whenever "conditions suitable for attainment of specially valuable results unfavourable to enemy morale, or favourable to Russian morale" might be attained. Likewise, the strategic bombing force was warned to meet demands to attack the Biscay U-boat bases, to afford all possible support should Allied armies re-enter the Continent, and to assist projected amphibious operations in the Mediterranean.

The Casablanca plan did not change the character of Bomber Command operations; it was in effect an emphatic re-affirmation of the policy embodied in the earlier directive of February 1942. With only one important modification—the elevation to first importance of targets concerned with enemy aircraft production—this general directive remained in force until tactical preparations began for the invasion of Europe in spring 1944. Air Chief Marshal Harris, however, employed Bomber Command more in conformity with the general object than the precise target

¹ Campaigns in Russia and (to a lesser extent) the Mediterranean naturally preoccupied the bulk of German military forces, and consumed an ever-increasing proportion of enemy war production. German industrial capacity and available manpower were still high, however, and both would have to be markedly reduced before an invasion could be contemplated with confidence.

systems detailed. His force had been expanded, re-equipped and trained for area bombing, and he considered that if he could devastate the Ruhr and thus weaken the mighty heart of German industry, then paralysis would soon attack the limbs. Thus although attacks on objectives concerned with the war at sea absorbed 30 per cent of Bomber Command's resources during the first three months of 1943, thereafter only mining was continued as a basic policy. Aircraft, transport and oil targets were indeed attacked but only as subsidiary elements of area bombing. To Bomber Command the Casablanca directive was merely the signal for the first really sustained and damaging air offensive against German industry in general. This major campaign against the Ruhr, the much vaunted "weapon smithy of the Reich", began early in March and had pronounced success at the very time when the American Eighth Air Force raids against the stipulated targets appeared tentative, experimental and uncoordinated. Harris' policy seemed vindicated and on 10th June when, following the TRIDENT conference, a supplementary directive² brought into full play the projected combined bomber offensive, precise targets were given only to the Eighth Air Force. The part to be played by Bomber Command was more cautiously delineated:

While the forces of the British Bomber Command will be employed in accordance with their main aim in the general disorganisation of German industry, their action will be designed as far as practicable to be complementary to the operations of the Eighth Air Force.

Many factors favoured the spring assault on the Ruhr, to which an abundance of bituminous coal (75 per cent of all German production) had drawn the most important heavy industries and metallurgical factories. Ideally situated at the focus of trans-continental road, rail, river and canal trunk routes, and having access to sea ports through other magnificent waterways, the Ruhr was considered easily defensible against any land offensive. Air power, however, here as elsewhere upset previous military geography in that the Ruhr is actually closer to Britain than almost any other part of Germany. So stupendous an undertaking as the removal of all industry to more remote areas was obviously impracticable, and the Germans gambled firstly on a short victorious war and secondly on strong gun and searchlight defences against weak British air attacks. Even in 1942, when the vision of a short war finally faded, Goering considered that additional fighter defences could prevent British bombers from smashing the Ruhr. The battle was thus to be a pitched one, and a classic example of the most powerful air offensive yet known cast against the most powerful defences. The proximity of the Ruhr had an added significance, for in the short nights of May and June this was the prudent radius of action for night bombers, and the weather at this season is always the most favourable for heavy sustained operations.

The Ruhr also lay within the range of high-flying Mosquitos using the new Oboe apparatus which had been tried out on small experimental raids

² This later became known as the POINTBLANK Directive and laid down as an intermediate objective that the German fighter forces and the industry sustaining them should be the first priority targets.

but was withheld from major attacks so that tactical surprise could be achieved when the main struggle began. The Oboe technique depended on special apparatus in an aircraft which retransmitted a signal from two or more ground stations back to those stations so that the exact position of the aircraft could always be determined by its distance from each. In practice one station kept the aircraft on a true track towards its objective, warning the pilot when he deviated from this line, while a second station measured the exact progress along the track and determined the optimum point of release which was then signalled to the aircraft. The technique was particularly valuable as it enabled a check to be made independently as to whether the crew had actually dropped the target indicator or bombs accurately. Transmissions did not follow the curvature of the earth and range thus depended on the ability of an aircraft to fly at constantly-increasing height as it got farther from the ground stations. In practice Mosquito aircraft were found most suitable and with them a range of just over 300 miles was achieved.³ Oboe, like Gee, had originally been projected as a blind-bombing device but again tactical factors and the dominant needs of the area bombing campaign resulted in its primary use as a target-marking device with flares instead of bombs. The general pathfinder technique was now well appreciated by the main bomber stream, and early faults had been rectified. Finally Bomber Command, though far below the ideal strength of 4,000 aircraft proposed during 1941, was now 70 per cent equipped with four-engined bombers and had sufficient aircraft and crews to put repeatedly into the air, forces of 500 and sometimes 800 aircraft. This optimism as to means was borne out in practice, for during April, May and June nearly 11,000 sorties were made over the Ruhr and Rhineland, equal to the entire total of all heavy-bomber night raids during 1942.

Improved equipment and tactics gave Bomber Command the possibility of success, which, however, still lay in the hands of the individual airman. The searchlights and anti-aircraft guns of the Ruhr Valley were already a by-word with bomber crews, and it required a special sense of purpose, calm courage and spirit of high adventure among the individual flyers to contemplate serenely a succession of missions entailing during every minute in the air not only natural discomforts and hazards, but every counter-measure which a powerful, energetic and ingenious enemy could bring to bear. Faced with the practical certainty that few crews would come through their operational tour safely, airmen of all Allied countries still strove eagerly to reach the operational squadrons of Bomber Command.⁴ This extraordinary morale was compounded of many factors: supreme faith in the nature of the job to be done, and the method of doing it; confidence

³ An Oboe aircraft was required to fly an undeviating course for approx 10 minutes to the target area which enabled the defence to accurately engage it with gun fire, hence the high-flying Mosquito was particularly suitable for the role. Even so, the long Oboe run to the target made heavy demands on the courage and fortitude of the Mosquito's pilot and navigator.

⁴ The current loss rate against German targets averaged 4 per cent. A tour consisted of thirty to thirty-five sorties. Even allowing for heavy casualties among "green" newcomers, the arithmetical chances of all aircrew were poor.

in past training and present techniques; absolute reliance in the aircraft types and in the hard unselfish devoted work of the maintenance crews, intelligence and meteorological staffs, transport drivers, cooks and scientists, on all of whom and on many more each flight in part depended. Less tangible than this determination of purpose which gave a "one-ness" to Bomber Command was the undoubted fact that the bombing campaign had caught and reflected the mood of the British peoples, who sought their heroes no longer among the fighter pilots who had reached their apex of importance during the desperate summer months of 1940, but now among the more prosaic teams of men actually carrying bombs and direct damage into enemy territory, and thus sublimating the intense mental hunger of the British for a "Second Front" on which to attack the enemy. Civilians took these men into their hearts and homes, without a thought of nationality, rank or distinction, and would proudly have stinted themselves to feast the airmen; they understood instinctively the peccadilloes and occasional roystering or flamboyant behaviour of men living constantly on the brink of yet another journey into the unknown; they followed with their prayers the receding drone of bombers headed for Germany, mourned for the loss of unknown young men who did not return and proudly exulted at the mounting success of the bombing.

This emphasis on team work in Bomber Command leaves the effort of Australians, whether on R.A.F. or R.A.A.F. units, as an indefinable part of the greater whole. The plan for an Australian group lapsed through lack of means, and the far less ambitious aim of concentrating Australians into the three existing R.A.A.F. night-bombing squadrons was pursued. This had some success as crews began to flow faster from operational training units during the spring. During April No. 466 received a large number of Australian aircrews for the first time and No. 467 was also strengthened. None of the squadrons became all-Australian, although there were over three men on other units for every one with the *Article XV* squadrons. This ideal in fact became impossible for the two Lancaster squadrons, because as no further Australian ground staff were to come to Britain, fitters could no longer be permitted to remuster as flight engineers, and men of other nationalities had to be accepted for these duties. Hitherto there had been no direct supervision of Australians within the operational commands, but tardily the R.A.A.F. followed the lead of other Dominion and Allied air forces which had established local liaison offices soon after their respective aircrews had entered the various commands. Group Captain White indeed had been working for a year in this capacity at the headquarters of Flying Training Command, but the desirability of such an appointment in Bomber Command to supervise crewing up had been ignored. Even in April 1943 only a tentative approach was made to this crucial problem, for the officer appointed was a flight lieutenant of the administrative and special duties branch, too junior in rank to influence authorities which at some levels did not appreciate, and

sometimes were unsympathetic to, Australia's nationalistic policy.⁵ It was, however, a beginning and at the same time No. 27 Operational Training Unit at Lichfield was recognised as the unit responsible for providing crews for Nos. 460, 466 and 467. Group Captain Heffernan was sent to command this O.T.U. on 16th June, and the ranks of flying instructors there were filled progressively by Australians resting between tours of operations. Slowly the supply of Australian crews began to improve, although if for any reason Australians were not available for posting to Lichfield when a course began, then inevitably non-Australian crews would be formed and posted to the R.A.A.F. squadrons.

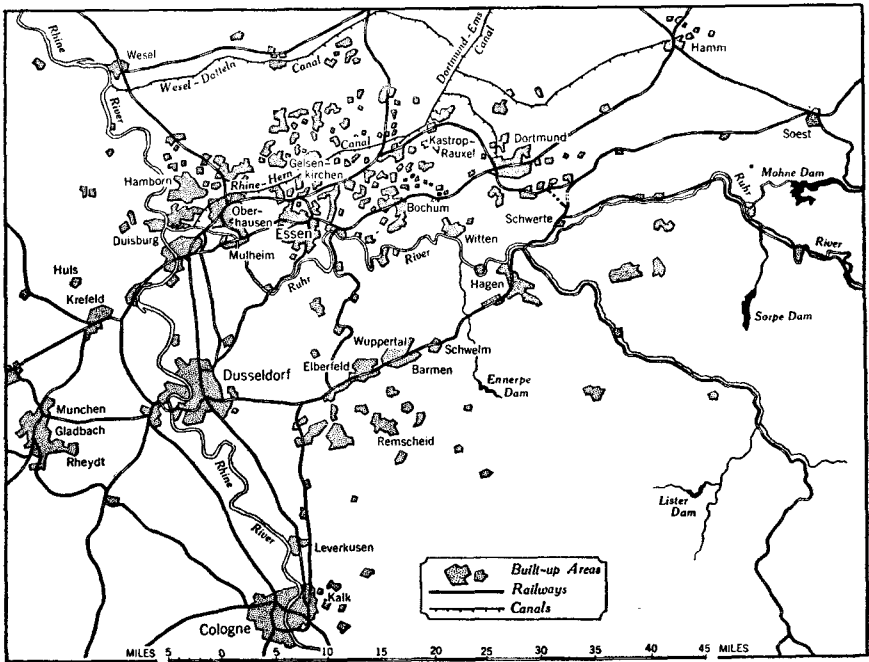
Irrespective of their varying complements Nos. 460, 466 and 467 adequately illustrate the intensity of effort, successes and failures, and sacrifices of the main force of Bomber Command in the Battle of the Ruhr. Wing Commander C. E. Martin, who had taken over No. 460 from Wing Commander Dilworth on 16th February, was the first Empire Air Scheme graduate to command a heavy-bomber squadron. Under him the squadron continued to progress as one of the most reliable and painstaking units of No. 1 Group. On 14th May it moved from Brighton to Binbrook in Lincolnshire which was to remain its base for the remainder of the war. This move took place by air, the main body in a train of Horsa gliders, the aircrew and maintenance party in Lancasters, and there was no interruption in operations. Wing Commanders Bailey and Gomm remained throughout the spring with Nos. 466 and 467 respectively at Leconfield and Bottesford and they also concentrated on achieving the highest possible level of operational flying. During April there was a suspected epidemic of diphtheria at Bottesford but although No. 467 was confined to camp for ten days, no fewer than six major raids and some mine-laying sorties were flown during this period of isolation.

The Battle of the Ruhr began with a memorable raid against Essen on the night of 5th-6th March 1943. This city had been raided many times during the preceding three years, and during 1942, ten per cent of the whole effort of Bomber Command had been directed against it, but with very little success. Although almost three miles in diameter it was extremely difficult to find at night, because it possessed no prominent landmark, was twelve miles away from the Rhine at its nearest point, and indeed could not easily be distinguished from other cities in the almost continuously built-up area of the Ruhr valley, itself usually covered by industrial haze. Now, however, Harris was ready to deliver a really shattering blow. The nuisance raids and experimental Oboe sorties during January and February had carefully prepared both Pathfinders and the main bomber force. Moreover enemy air-raid sirens had been alerted on an average of one night in two during this period with significant effect on production and on the nerves of the workers.⁶ Mental pressure had to be

⁵ Canada maintained a personnel staff offr in the operational training gp headquarters and 7 sqn ldrs in the field, Poland had 4 liaison offrs in Bomber Cd—1 gp capt, 2 sqn ldrs and 1 f-lt.

⁶ On 3 Mar an editorial in *National Zeitung* declared: "The population of the Ruhr district . . . are meeting the enemy's blows for the entire nation. They are facing the enemy nightly and work-

followed by actual destruction and accordingly the initial well-planned raid was staged. The bomb-carrying force totalled 412 aircraft⁷ led by a Pathfinder force of eight Oboe Mosquitos and twenty-two Lancasters. The route ran direct from Egmond-on-Sea in Holland to a point fifteen miles north of the target; here yellow target indicators were dropped as a guide to the main force. From this point the bombers started their run up to the target veering left after bombing and recrossing the coast at Egmond.



Oboe Mosquitos marked the precise aiming point (Krupps iron works) with red target-indicator bombs at three- and seven-minute intervals alternatively⁸ while the Pathfinder heavy aircraft backed up these primary indicators with green ones dropped at intervals of one or two minutes throughout the attack. The planned duration of the raid was thirty-eight minutes, giving a density of attack of eleven aircraft over the target every minute.

Of the 369 aircraft which actually bombed Essen that night thirty-three were from Nos. 460, 466 and 467 Squadrons. The Australians reported about 150 active searchlights in the area but they lost only one Wellington

ing daily with undiminished vigilance . . . It is difficult to give a correct picture to someone who has not experienced a raid, and even those who have occasionally been through one cannot imagine what it means to be expecting them continually and to live in strained preparedness to defend oneself against this terror."

⁷ 140 Lancasters, 89 Halifaxes, 52 Stirlings and 131 Wellingtons.

⁸ i.e. both available Oboe channels were employed, each operating once every ten minutes.

of No. 466 in this highly successful raid. Flight Sergeant Tozer⁹ of the same squadron collided over the North Sea with another Wellington and with difficulty flew his damaged aircraft back to base. Descriptions of the immediate effects of bombing varied from "an immense pot boiling over" to "the glow from 150 miles away looked like a red sunset" and all Australians were confident of success. Photographic reconnaissance later showed that 300 acres of Essen had been seriously damaged, mainly by fire, including sixty-six acres of industrial plant. Some 10 per cent of the vital Krupps works had been damaged.

This was a victory comparable only with Cologne, and Harris sent a special message of congratulation to all squadrons:

... If it centred on the target which there seems no reason to doubt, then Essen has received a catastrophic blow at long last. By giving it a second barrel without pause, and with the same degree of concentration you can inflict a mortal injury of vital import on the enemy. Much is being asked of you at this critical juncture and your response is magnificent.

An attack was prepared for 7th-8th March but was abandoned because of bad weather, and the "second barrel" actually came on the night of 12th-13th March, a week after the first raid. Then R.A.A.F. squadrons dispatched thirty of the 457 aircraft sent out, and again a very concentrated attack developed with the aid of accurately-dropped target indicators. Enemy opposition was severe. Two Wellingtons of No. 466 were badly damaged by gun fire but the R.A.A.F. crews all returned safely, although the Command lost twenty-three bombers. The Australian squadrons were not molested by night fighters, but, in a typical successful action, Flight Sergeant Peters,¹ the rear gunner of a Stirling of No. 15 Squadron, destroyed one Me-110 and damaged another thus aiding his damaged aircraft to continue to the target. Two enormous explosions were reported and a fantastic, huge fire seemed to cover Essen and it was later judged that 27 per cent of the Krupps buildings had been badly hit.

Three more raids against Essen followed in April and May 1943.

Of these the first achieved considerable success, but the latter two were made from above heavy clouds with only drifting sky markers to help bomb aimers. The result was scattered and wide bomb hits which did useful damage to housing and general civil facilities but which could not delay the urgent repair program in evidence at Krupps. These raids are chiefly notable for a marked increase in German anti-aircraft defences, accurate heavy-calibre fire reaching up to the superior height of 21,000 feet at which Lancasters could fly. On 3rd-4th April two Australian Lancasters were damaged but on 30th April no fewer than eight were hit by barrage-type fire while directly over the target. Two of these aircraft were thrown over on their backs by blast and Flight Sergeant Christensen² was

⁹ P-O C. F. Tozer, 406585; 466 Sqn. Clerk; of Fremantle, WA; b. Subiaco, WA, 10 Sep 1921. Killed in action 16 Apr 1943.

¹ W-O K. W. M. Peters, DFM, 407872; 15 Sqn RAF. Clerk; of Peterborough, SA; b. Millicent, SA, 3 Mar 1911.

² F-Lt L. J. Christensen, DFM, 415100; 460 Sqn. Diesel engineer; of Fremantle, WA; b. Fremantle, 14 Oct 1914.

forced to dive down to 1,500 feet before he regained control of his madly-plunging Lancaster. On 27th-28th May when German searchlights could not pierce the clouds, the gunners maintained a heavy barrage around the Pathfinder sky markers, and although on this occasion only one Australian aircraft was hit, this expedient prevented deliberate bombing on a fixed heading,³ so that the raid was a relative failure.

After an interval of two months Bomber Command staged the heaviest raid on Essen (Table No. 27) to that date.⁴

TABLE No. 26

ESSEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Apr 3- 4	348	317	460 467	12 14	10 14	983	21	— 1
Apr 30- May 1	305	251	460 467	17 16	15 14	840	12	— 1
May 27-28	581	493	460 466 467	18 10 21	17 10 20	1,442	21	1 — 1

Gun, searchlight, and night-fighter defences strongly opposed the first wave of bombers, but the Pathfinders appeared punctually and their markers were refreshed throughout the attack which lasted for fifty minutes. The dreadful hail of forty tons of bombs every minute soon disorganised ground defences and the main bomber stream was not unduly troubled. Paradoxically this high degree of concentration which gave general protection, exposed occasional aircraft to special hazards. Christensen's Lancaster was hit by incendiaries falling from another aircraft and lost much of its elevator surface before the fire could be put out by diving. While still blazing the Lancaster was singled out by searchlights and guns and damaged further. While straggling behind the returning bomber stream it was again attacked, this time by a night fighter, but eventually it reached Hawkinge where a successful crash landing was made using only faulty controls. One other Lancaster (of No. 467) was hit by gun fire, but other

* As sky markers were suspended in space and drifted downwind it was essential when employing them for bomb aimers to project their bombs through this point in *one direction only* if hits were to be achieved on the target.

* The "1,000-Bomber Raid" of 1 Jun 1942 had failed and on that occasion the total bomb load was only 1,297 tons.

crews, already heartened by the tremendous success achieved the previous night at Hamburg, made the greatest possible use of clear weather and disorganised opposition. The Australians checked the position of Pathfinder markers which were still visible even when a fantastic pall of smoke billowed up to 22,000 feet. Fires were still burning twelve hours after this

TABLE No. 27

ESSEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Jul 25-26	705	599	460 466 467	25 10 14	23 7 13	1,948	24	— 1 —

attack and severe damage was noticeable in a broad swathe extending from Ruttenscheid in the south-east to Vogelheim in the north with the centre of damage at Krupps. Here no fewer than 110 of the 190 main workshops and buildings had suffered in varying degree and the effect of this raid was as severe as the cumulative damage caused by all previous attacks. At long last Essen was removed from the list of primary objectives and Bomber Command did not return for a long time. The six raids of this Ruhr battle had achieved the purpose of damaging severely, though not of eliminating, the industrial capacity of Essen, and the vital preparation for Allied superiority in matériel had begun.

Of scarcely less importance was Duisburg, a city at the junction of the Rhine and Ruhr Rivers, and the largest inland port in Europe. Besides acting as the transport centre for all the western Ruhr, Duisburg contained numerous highly-important industrial plants, most of which were subsidiary companies of the Vereinigte Stahlwerke. Accordingly five raids were made during the spring of 1943 (Table No. 28).

The first two of these raids had disappointing results, both being launched above cloud with the aid of scattered sky markers. Fairly satisfactory bombing was reported by the small force sent on 9th-10th April but the opportunity for a heavy concentrated blow did not come until 26th-27th April when there was little or no cloud over the target and when a record number (221) of 4,000-lb bombs was dropped. Even on this occasion, bombing though concentrated was displaced to the north and east of the true aiming point. On 12th-13th May weather was ideal and the raid centred squarely on Duisburg itself where forty-eight acres were entirely burnt out and many munitions factories, chemical works and a tar distillation plant were severely hit. This outstanding raid was

fairly costly, but the Australian squadrons had no casualties, although as on all this series of attacks several aircraft were damaged by gun fire, and Squadron Leader Thiele⁵ of No. 467 for the second time within four weeks had to return with only his two port engines in action.⁶ This difficult feat which succeeded only because of Thiele's cool airmanship and the engine power, manoeuvrability and rugged construction of the Lancaster aircraft gave new confidence to crews of his own and other squadrons facing the ever-increasing gun defences of the Ruhr.

TABLE No. 28

DUISBURG

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Mar 26-27	455	387	460	11	10	945	6	1
			466	14	9			—
			467	8	8			—
Apr 8- 9	392	304	460	9	9	846	19	1
			466	8	5			1
			467	9	9			—
Apr 9-10	109	99	460	8	8	321	8	1
			467	7	6			—
Apr 26-27	561	499	460	12	12	1,450	17	—
			466	14	12			—
			467	18	17			—
May 12-13	572	517	460	12	11	1,599	35	—
			466	15	15			—
			467	19	19			—

The total damage at Duisburg itself was now significant enough to allow the transference of effort to its two important satellite towns of Oberhausen and Mulheim (Table No. 29), each of which received one attack during June.

The Oberhausen raid was performed with sky markers, but as these were grouped close together Australian crews were confident, especially as fires could be seen as far away as the Dutch coast on return. Two

⁵ Sqn Ldr K. F. Thiele, DSO, DFC, RNZAF. 405 Sqn RCAF, 467 Sqn, 41 Sqn RAF, 486 Sqn RNZAF; comd 3 Sqn RAF 1945. Cadet reporter; of Christchurch, NZ; b. Christchurch, 25 Feb 1921. Thiele, after serving on 405 and 467 Sqn as a flight cdr transferred to Fighter Cd, then to 2 TAF; a fairly unusual experience.

⁶ The first occasion was during a raid against Stuttgart on 14-15 Apr.

listed priority targets—a steel works and a boiler works—were both severely damaged. Eight days later at Mulheim the skies were clear and 12 Oboe Mosquitos and 52 heavy Pathfinder aircraft had no difficulty in giving a reliable aiming point for the bomber stream throughout the attack. Five large steelworks were hit and dense fires gradually merged into a sea of flames in the closely built-up area of the town where the main railway station, public buildings, business houses, and homes suffered extensively. Mulheim, however, was described by one Australian as “the hottest target yet encountered”, for both here and at Oberhausen the local defences were joined by those of Duisburg, Essen and Dusseldorf which ringed the area. Eleven Australian aircraft were hit by gun fire and two more were attacked by night fighters. All these aircraft reached base safely, but the actual losses (nearly 7 per cent, both for the whole force and the R.A.A.F.), coupled with the high incidence of damaged aircraft, were dangerously high, and were bearable only because of the undoubted success achieved.

TABLE No. 29

OBERHAUSEN-MULHEIM

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943									
Jun 14-15	Oberhausen	203	165	460 467	22 12	21 10	573	17	3 —
Jun 22-23	Mulheim	557	499	460 466 467	18 10 13	18 9 13	1,643	35	1 1 —

During May two heavy attacks were projected against Dortmund (Table No. 30), an important steel, synthetic oil and transport centre. This is the largest town in the Ruhr after Essen and as the terminus of the Dortmund-Ems canal had the same importance to the eastern Ruhr that Duisburg had in the west.

Both raids were favoured by excellent weather and visibility, so that although enemy defences were active the majority of the attackers arrived in a compact body. Three Australian bombers were damaged by gun fire on each occasion, but most crews reported that they ran in, aimed at well-placed markers, and were away again before they could be singled out by searchlights or guns. Dense palls of smoke obscured huge fires on both nights and the centre of the city was almost entirely burnt out. Seven branches of the Hoesch combine, one of the largest steel-producing under-

takings in Germany, were temporarily put out of action and other steel-works, engineering factories and railway facilities were heavily damaged. The havoc caused by this simultaneous wrecking of industry, housing and transport for a short time made Dortmund the most disorganised city in Germany. In the second raid for the first time over 2,000 tons of explosive and incendiary bombs were dropped in one night. This scale of attack not only swamped enemy defences but resulted in geometric rather than arithmetic progression of damage compared with lighter attacks. In some respects the virtual elimination of this industrial centre after only two attacks, and at a total cost of sixty-nine aircraft, was one of the most remarkable successes yet gained.

TABLE No. 30

DORTMUND

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
May 4- 5	596	495	460	19	17	1,436	31	1
			466	14	13			1
			467	20	20			—
May 23-24	826	724	460	24	22	2,042	38	2
			466	15	13			—
			467	24	24			—

Within the Ruhr proper, only one target with a well-defined central city area now remained undamaged. This, the coal producing and steel centre of Bochum lying mid-way between Essen and Dortmund, was attacked twice by a large force (Table No. 31). Already on 29th-30th March when the main attack was against Berlin, Wellingtons, including twelve of No. 466, had dropped 152 tons of bombs on Bochum, but with little effect. Even for the first major raid the Lancasters of No. 5 Group were not available as they bombed Pilsen in Czechoslovakia that night. On the last raid only four-engined aircraft were engaged.

Both these raids were highly successful, the first razing the city centre and the second extending damage to industrial suburbs. Again there were no navigational or marking difficulties and, as at Dortmund, success lay in the ability of determined and well-trained crews to burst through enemy opposition. Australians reported the familiar crises of engine failure, fighter attack and damage from gun fire, but none of these was a real deterrent to crews which saw in this laying waste of the Ruhr a positive contribution to Allied victory. On 13th-14th May two R.A.A.F. aircraft

were damaged but reached England. Some Australians in a Lancaster of No. 12 Squadron were not so fortunate and had to descend in the sea twenty miles from the Dutch coast. The crew drifted for five days in their dinghy and were then rescued by a British mine-sweeper.

TABLE No. 31

BOCHUM

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis- patched	Attack- ing	Sqn No.	Disp	Atkg			
1943								
May 13-14	442	378	460 466	17 13	16 12	1,055	24	— 1
Jun 12-13	503	454	460 467	22 18	21 17	1,507	24	2 —

The spring campaign against the Ruhr ended with a partial failure of two attacks on Gelsenkirchen (Table No. 32), which, although credited with a population of over 300,000, was a sprawling network of townships engaged in the production of coke, gas, ammonia, benzol and other by-products of coal.

TABLE No. 32

GELSENKIRCHEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis- patched	Attack- ing	Sqn No.	Disp	Atkg			
1943								
Jun 25-26	473	424	460 466 467	15 8 17	14 8 14	1,291	30	— 1 —
Jul 9-10	422	373	460 467	15 12	15 12	1,304	10	— —

On 25th-26th June heavy cloud covered the whole area, and the actual winds which were encountered differed greatly from those forecast. Consequently the bomber stream became dispersed and ill-timed. Technical failures in Oboe Mosquitos resulted in few primary sky markers, and these

were rapidly scattered by the wind. The already-disorganised main bomber force thus had no reliable aiming point and bombs were dropped over a very wide area. Australians for the most part bombed the glow of apparent fires beneath the clouds. The second raid began well with a good concentration of sky markers, but although one or two heavy explosions were seen by Australian crews, they expressed little hope of outstanding success. The dispersed nature of the district saved it from the raging fires which were the chief agents of destruction in city areas. The Gelsenkirchen synthetic oil refineries were constantly listed for heavy attack by the Ministry of Economic Warfare, but this target was unpopular with crews and Bomber Command planners alike. The same risks had to be run with little certainty at this time that a worthwhile result would be obtained as against built-up areas.

TABLE NO. 33

RUHR

	Target	Total Force		RAAF Force			Tons of Bombs	Total air-craft lost	RAAF air-craft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943									
May 29-30	Barmen	719	644	460	12	11	1,822	33	2
				466	14	13			3
				467	22	19			—
Jun 21-22	Krefeld	705	661	460	20	18	1,956	42	1
				466	13	12			—
				467	9	9			—
Jun 24-25	Elberfeld	630	554	460	15	14	1,663	34	1
				466	14	12			—
				467	12	11			—
Jul 30-31	Remscheid	273	228	460	6	3	693	15	—
				467	4	4			—

More suitable targets were found during this period in three cities on the fringe of the Ruhr—Wuppertal, Krefeld and Remscheid. None of these contained industries of first magnitude, but each supplied a proportion of the components, special steels, machine tools and textiles on which depended the heavy industry of the Ruhr. Wuppertal consists of the twin towns of Barmen and Elberfeld lying together in a deep, narrow valley. These were attacked separately, one heavy raid laying each section of the city in ruins. Krefeld and Remscheid suffered the same fate when attacked in clear weather, for fires, once they had gained firm hold, raged unchecked through the innumerable workshops and small factories within the residential area of these cities (Table No. 33).

All these attacks were made in the face of very bitter opposition not only from the local gunposts but from all the well-trained dense network of searchlights and guns which now covered the whole Ruhr area. At Barmen one Lancaster of No. 460 was held in a cone of many searchlights, went into a spin and was brought under control when it was only 1,200 feet from the ground. On the same night another Lancaster was coned over Dusseldorf, and despite vigorous evasive action was passed on from cone to cone and forced down to 5,000 feet over Witten before it could get clear. Although losses were lighter the same conditions prevailed at Elberfeld and were accentuated by prevailing icing conditions which forced several crews to jettison part of their load over Dusseldorf so that they could regain height for attack on the primary target.

TABLE No. 34

DUSSELDORF

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
May 25-26	759	686	460	19	19	1,959	27	—
			466	18	15			—
			467	20	18			2
Jun 11-12	783	693	460	27	22	1,968	38	1
			466	16	16			2
			467	18	17			2

One attack was also made on Aachen which contained a large number of small textile and engineering factories but whose chief importance lay in that it was the focus of railway lines leading south-westwards from the Ruhr. On 13th-14th July, No. 466 dispatched fourteen Wellingtons in a force of 374 aircraft which met only weak opposition. The raid began badly but, as fires took hold in the town, the degree of concentration was improved and Australians observed a number of heavy explosions. Their reports were later checked by photographs which showed that almost half of the town was in ruins.

Although they lie outside the area, Dusseldorf and Cologne could not be ignored in any methodical plan to hinder Ruhr industry. Dusseldorf was the leading commercial city of western Germany and housed the administrative departments of many large industrial combines, as well as a number of major armament firms. Two attacks were made (Table No. 34).

During the first raid heavy cloud towered to 20,000 feet over the target and bombing by the aid of sky markers was attempted, though

most of the Australian crews reported that the raid was probably a failure. There was a marked absence of ground fire and no searchlight activity, which led captains to conjecture that the enemy realised that the aiming points were misplaced and was unwilling to reveal the true position of the target. Later photographic assessment showed that most of the bombs did miss the city, although a few fell in south-western suburbs. Heavy fighter opposition was offered, however, and many aircraft were shot down during their bombing runs.

Conditions were radically different for the June raid, when in perfect visibility the Pathfinders accurately placed their target-indicator bombs in the centre of the city. The main force of bombers, again including Nos. 460, 466 and 467, arrived promptly in a solid stream which soon had the effect of swamping the gun and searchlight ground defences which on this occasion were in full operation. A few of the Australians attacking early were caught and held in the beams of several searchlights and some had to jettison their bombs to take emergency evasive action, but the majority of bombs fell squarely in the heart of Dusseldorf and soon large fires began to get out of control. Over a third of the business and residential property in the centre of Dusseldorf proper was destroyed or damaged and sixty-four factories sustained varying degrees of damage. But this notable victory was not lightly gained, for once again German night fighters were very active both over Dusseldorf and along the line of flight and withdrawal. Five R.A.A.F. bombers failed to return and several others were very badly damaged. During this raid Flight Sergeant Williams,⁷ the Australian rear gunner of a Halifax of No. 35 (P.F.F.) Squadron R.A.F., who had already been decorated twice for bravery in action, showed remarkable courage and ability when his aircraft was attacked by two night fighters. The initial attack destroyed the rear-turret mechanism and Williams sustained several bullet wounds in the legs and body. His cool mind now mastered his pain so that when the second fighter attacked he gave his pilot the correct directions for evasion and himself opened fire, hitting the enemy which exploded in the air. The first fighter then resumed the attack, but Williams, although temporarily partially paralysed, succeeded in destroying it. He remained at his post throughout the return journey and the turret then had to be cut away to release him. His shooting ability, sense of anticipation and above all his determination, undoubtedly contributed largely to the return of a valuable crew and aircraft.⁸

Williams' magnificent action highlighted a situation which administrators of the Empire Air Scheme were belatedly beginning to realise. Under conditions of a heavy-bomber offensive matched against a large and determined fighter-opposition, the defensive gunner becomes of supreme importance in a crew. Previously the role of "straight" gunner⁹ had not

⁷ Sqn Ldr N. F. Williams, CGM, DFM, 411624. 10 and 35 Sqns RAF, 23 Sqn. Time keeper; of Leeton, NSW; b. Leeton, 3 Nov 1914.

⁸ Williams was awarded the rare CGM as a result of this action.

⁹ "Straight" gunner i.e. without the wireless-telegraphy training.

been as attractive as that of pilot, navigator or even of the skilled wireless-telegraphist air gunner. Conditions of service, pay, promotion and training had all weighed against the gunner who only too often in public estimation was a man of lower grade than his crew companions. At first, gunners were recruited among trainees who failed in other courses, but even with direct enlistments an unfortunate feeling persisted among instructors that gunners were by nature lazy, unintelligent and refractory—and that at all costs they must be disciplined.¹ Training which should have stressed self dignity, cooperation, and the technical value of the gunner's services was often perfunctory and in fact bred ill-discipline. Some schools in Australia were badly equipped and training had no relation to the guns, turrets, and type of operation which the men were to experience in Europe. Some gunners posted to No. 464 Squadron when it formed had fewer than ten hours flying experience. Straight gunners destined for heavy-bomber squadrons joined crews only after the O.T.U. stage, they were invariably the least-experienced airmen at the very time when increasing and often dangerously-high losses in aircraft were teaching that special attention would have to be given to raising the general efficiency and status of the air gunner. Once in the sympathetic interdependent crew and squadron atmosphere most gunners quickly adjusted themselves to requirements, but many crews were lost before this new confidence and ability was gained. Squadron training in Bomber Command and especially the appointment of gunnery leaders focused attention on the worth of gunners, and a more liberal policy of commissioning and recommendation for awards was also of great benefit.

Cologne, third largest city of Germany, had almost entirely recovered from the experimental mass raid of May 1942, when four more attacks were made to round off the Ruhr campaign (Table No. 35).

For the first of these attacks towering clouds and icing conditions were prevalent. The Pathfinders were late and the sky markers were scattered over a wide area. The main force itself was disorganised by the bad flying conditions, the confused aiming points, and the presence of very determined enemy fighters; few hopes were expressed of any worthwhile result. However, the next three raids were all very successful, even though two were again made with the aid of sky markers only; they were indeed the outstanding successes so far achieved by this method. The second June raid fell squarely on the centre of Cologne; the first July raid caused heavy damage in industrial areas east of the Rhine; and the last attack spread fires throughout the suburbs to the north and north-west of the city.

This series of raids on Cologne cost the Australian squadrons six aircraft and crews, including one which crashed at base on return from the first attack. Three other aircraft were lost although the crews were not injured; fifteen aircraft were damaged by anti-aircraft fire, five were

¹ A typical example of this unfortunate discrimination is the description given by a ground staff officer of No. 2 Embarkation Depot RAAF: "Not enough guts for a pilot, not enough brains for an observer, and too lazy to do their wireless course. They're only air gunners."

attacked by night fighters and others sustained minor damage to engines and airframes. These losses though serious were light compared with the damage caused in Cologne which, except for a few southern suburbs, resembled a burnt-out shell.

However fruitful appeared the nightly battle of attrition by area bombing, the incident which captured the imagination of all watching the Ruhr campaign was of a very different character. On 16th-17th May 1943 a

TABLE No. 35

COLOGNE

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Jun 16-17	212	179	460 467	18 11	15 10	656	15	1 1
Jun 28-29	608	540	460 466 467	15 13 20	12 13 20	1,614	25	— — 1
Jul 3- 4	653	589	460 466 467	17 14 19	17 13 19	1,808	30	1 1 —
Jul 8- 9	288	255	460 467	20 18	18 17	1,037	7	— — (+ 4 lost over the U.K.)

very small force of Lancaster aircraft made a precision low-level bombing attack projected against four dams in the upper-Ruhr and Weser Valleys from which all the main industrial cities drew water for domestic supplies and hydro-electric power, and which also helped to control winter flood waters over a wide area. This task was entrusted to No. 617 Squadron R.A.F., a new formation specially created for this task and containing only experienced crews. Of the Australians chosen for this novel assignment, several had originally been members of No. 455 but had since completed a tour of operations with No. 50 Squadron R.A.F. From this little band Flight Lieutenant Leggo² was chosen as the squadron navigation

² Sqn Ldr J. F. Leggo, DFC, 402367. 455 Sqn, 50 and 617 Sqn RAF, 10 Sqn. Bank clerk; of Newcastle, NSW; b. Sydney, 21 Apr 1916. Leggo later retrained as a pilot and flew Sunderland flying-boats in Coastal Cd.

officer and Flight Lieutenant Hay³ as the bombing leader. Training for this surprise blow included six weeks of low-level flying over lakes and dams in England. Special mines had been developed to breach the heavily-reinforced walls of the enemy dams, and great accuracy was required of pilots who had to dive by night into a wooded valley, level out at sixty feet exactly, then fly straight and level ignoring opposition until the mines were dropped. More than ordinary cooperation was required between members of each crew and between individual aircraft before such a daring and hazardous exploit could be mounted at all. The whole squadron, although ignorant of the precise objective until the evening of the attack, realised that something big was in the air and worked with enthusiasm to ensure that everything would be ready in time.

The total number of aircraft available for the raid was nineteen, and this force was split into three waves. Nine aircraft were to attack the two prime targets—the Mohne and Eder dams—while the second wave of five Lancasters attempted to breach the Sorpe dam. The remaining five aircraft were held in reserve to take off three hours after the first two forces; and although each of these aircraft was detailed to attack one of the minor objectives—the Lister, Ennerpe and Diemel dams—they were also intended to be diverted against the Mohne and Eder dams should the primary assault there fail.

Wing Commander Gibson⁴ led the first attacking wave and after skirting the heavy Ruhr defences arrived at the Mohne dam with eight Lancasters, one having been shot down while crossing an enemy airfield. From this point Gibson controlled the raid by orders given by high-frequency radio-telephone. It was the first time this dangerous expedient had been permitted, but it was now considered necessary to control aircraft circling in a very confined space awaiting some signal for individual attack. Gibson himself opened the attack, but was not satisfied with his first approach and refused to drop his mine although he had come under fire from seven to ten light anti-aircraft batteries defending the dam. He circled, and on the second run his Australian bomb aimer, Pilot Officer Spafford,⁵ dropped a mine close to the retaining wall. The second Lancaster was hit by gun fire as it approached, overshot with its mine, climbed a few hundred feet and then crashed in flames. Flight Lieutenant H. B. Martin⁶ was then ordered to attack and although Gibson flew alongside him to draw some of the enemy fire his Lancaster was hit many times and lost all the petrol from one of his wing tanks. Nevertheless his mine fell accurately and Gibson thought he saw the dam wall move.⁷ However,

³ F-Lt R. C. Hay, DFC, 407074. 455 Sqn, 50 and 617 Sqs RAF. Civil servant; of Gawler, SA; b. Renmark, SA, 4 Nov 1913. Killed in action 13 Feb 1944.

⁴ W Cdr G. P. Gibson, VC, DSO, DFC, 39438 RAF. 83 and 29 Sqs RAF; comd 106 Sqn RAF 1942-43, 617 Sqn RAF 1943; W Cdr (Flying) Nos 55 and 54 Bases 5 Gp RAF. Regular air force off; of Porthleven, Cornwall; b. Simla, India, 12 Aug 1918. Killed in action 19 Sep 1944.

⁵ F-O F. M. Spafford, DFC, DFM, 407380. 83 Sqn RAF, 455 Sqn, 50 and 617 Sqs RAF. Fitter; of Wayville, SA; b. Adelaide, 16 Jun 1918. Killed in action 15 Sep 1943.

⁶ Sqn Ldr H. B. Martin, DSO, DFC, AFC, 68795 RAF. 455 Sqn, 50, 617 and 515 Sqs RAF. Of Sydney; b. Edgecliff, NSW, 27 Feb 1917.

⁷ G. Gibson, *Enemy Coast Ahead* (1947), p. 290.

two more mines, the second of which made a direct hit, were required before the dam was breached.

Gibson now sent two of the surviving crews back to base, and, accompanied by his senior flight commander and the three aircraft which had not yet bombed, he flew on to the Eder dam. Expecting the defences to be fully alerted by this time, he firstly made a preliminary reconnaissance approach and then ordered Flight Lieutenant Shannon⁸ to attack. Shannon made five circuits but on each occasion was not satisfied and refused his bomb aimer permission to drop the mine. He reported to Gibson that the steep hills surrounding the Eder dam made it difficult to manoeuvre, and suggested that he circle for a while to select a deliberate approach. The Lancaster which succeeded him also had great difficulty but attacked on its third approach, the mine overshooting and detonating instantaneously as it struck the parapet, probably destroying the aircraft which failed to return. Shannon now moved in again and with a well-chosen run achieved a direct hit on the retaining wall, though to everyone's disappointment there was no immediate breach. Everything now depended on Pilot Officer Knight⁹ who carried the remaining mine. He had profited from the opportunity of studying the terrain, and after one dummy run he also made a direct hit and this time the wall broke. As at Mohne the waters began to pour down into the valley in an increasing flood which tore more and more of the wall away as it gathered pace.

With both primary objectives successfully accomplished there was immense jubilation, but this was tempered by uncertainty concerning the two auxiliary forces. Two of the five Lancasters detailed to attack the Sorpe dam were forced to return early, two were not seen at Sorpe and were never heard of again. This force had been intended to draw away enemy fighters from Gibson's Lancasters, and accordingly when the one aircraft which arrived had dropped its mine, it remained firing Very lights and attracting as much attention as possible to decoy the enemy night fighters. The Sorpe was a much smaller dam but it had 600 feet of earthen wall on either side of the concrete core and though some of the crest was seen to crumble after this lone attack, the wall held firm. Three of the reserve Lancasters of the third wave were now diverted to Sorpe but only one arrived and in its attack caused more of the earthen wall to crumble, but again without major success. The fourth reserve aircraft was directed against the Lister dam, but nothing further was heard of this aircraft. The final Lancaster successfully attacked the Ennerpe dam after making three runs, and this aircraft returned in broad daylight across Holland.

This brilliant and extremely daring attack by such a small force produced results which in themselves could be deemed catastrophic, but which gained immeasurably in importance viewed alongside the devasta-

⁸ Sqn Ldr D. J. Shannon, DSO, DFC, 407729. 106, 617 and 246 Sqn RAF. Clerk; of Bridgewater, SA; b. Unley Park, SA, 27 May 1922.

⁹ F-Lt L. G. Knight, DSO, 401449. 50 and 617 Sqn RAF. Clerk; of Camberwell, Vic; b. Camberwell, 7 Mar 1921. Killed in action 16 Sep 1943.



(Air Ministry)

This reconnaissance photograph (looking west) of Cologne in July 1943 shows the large proportion of burnt-out buildings. At bottom centre stands the Cologne Cathedral next to the badly-damaged railway station. The Cologne-Gereon marshalling yard, one of the nine railway transportation targets listed for attack in the June 1941 plan, can be seen in full operation.



(R.A.A.F.)

Fitters of No. 453 Squadron work on a Spitfire at Perranporth airfield, Cornwall, 1943.



(R.A.A.F.)

A Mosquito fighter of No. 456 Squadron over southern England, 1943.

tion spread by fire and high explosive over the whole Ruhr area by the concurrent Bomber Command offensive. Ruhr industries were deprived of a great deal of their industrial water, and floods caused devastation and disruption throughout the valley of the River Ruhr as far as Duisburg and in the valley of the Weser as far as Kassel. In addition to such positive damage to the enemy, this raid had also many far reaching beneficial effects throughout Bomber Command and indeed among all the Allies. To civilian workers it was a tangible victory which exalted the heart far more than the familiar recital of bombs dropped and buildings destroyed in a normal area attack. It served to strengthen public opinion that the bomber could pave the way for eventual victory. Within the rank and file of the air force it gave overnight a new tradition and spurred many on to emulate the efficiency, determination and magnificent courage which had created this success. In higher circles it cut across the agitation to abandon area bombing in favour of the American air force theory, as yet inconclusively proved in practice, that bombers should be used only in daylight attacks against precision targets. No. 617 was retained for special duties requiring unorthodox methods and impetus was given, especially within No. 5 Group R.A.F., to the evolution of new techniques and objectives ancillary to the main bombing offensive.

The sixteen Lancasters which actually penetrated enemy territory on this outstanding raid carried thirteen Australian airmen, four of whom were captains of aircraft. Eight Lancasters were lost involving the deaths of fifty-five men, a solitary Australian rear gunner surviving to become a prisoner of war. Only two Australians were killed and the ten who returned safely became Homeric figures.

During March and April 1943 Bomber Command also made a series of raids on cities in southern Germany (Table No. 36). Nuremberg, Munich, Stuttgart and Frankfurt-on-Main were all industrial centres of importance and each had escaped lightly in previous attacks. The purpose now was not only to damage them, but also to perfect a long-range technique for Pathfinder-led raids using H2S instead of Oboe. Moreover there was a deliberate linking of these attacks with the Ruhr campaign insofar as they kept German ground and air defences spread out as widely and as long as possible. The threat, however, could not be maintained during the short nights of May and June.

These attacks were only partly effective in their main object. The first attack on Nuremberg failed entirely as the Pathfinders were fifteen minutes late and then dropped their flares north-west of the town. On 8th-9th March crews from No. 467 reported that marking was again scattered and erratic, with some target indicators up to fifteen miles apart and mostly over open country. However, one well-placed cluster of green flares over the southern part of Nuremberg attracted a large proportion of bombs and in fact industrial damage there was considerable. In good weather the following night the only full success of this series was gained at Munich where fire swept through the centre, north and west of the city, damaging

industrial plants, military establishments, railway facilities and public buildings. Both attacks on Stuttgart and that on Frankfurt-on-Main failed as a result of poor marking. At this period the standard of H2S operators was not high and the apparatus itself was subject to frequent failure during flight, so that unless a visual check was possible on ground detail, navigation was seldom precise enough for long-range raids. However, these attacks to some extent served their secondary purposes of gaining experi-

TABLE No. 36

SOUTHERN GERMANY

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943									
Feb 25-26	Nuremberg	337	278	460 467	8 9	7 8	749	9	— 1
Mar 8-9	Nuremberg	335	292	460 467	10 11	9 11	782	7	— —
Mar 9-10	Munich	264	217	460 467	10 6	9 5	567	8	— —
Mar 11-12	Stuttgart	314	267	460 467	10 9	9 9	801	11	— 1
Apr 10-11	Frankfurt-on-Main	502	436	460 466 467	7 13 6	7 13 5	1,037	18	— 1 —
Apr 14-15	Stuttgart	462	365	460 466 467	6 11 3	6 10 3	801	23	— — —

ence and of preventing further transfers of guns to the Ruhr. They were comparatively inexpensive, although at times determined opposition was met. Crews felt that they were maintaining air initiative over all enemy territory.

For political and military reasons Berlin invariably retained a high position in any directive to Bomber Command. Three attacks during March 1943 were of special interest to Russia as a renewed sign of cooperation between the Allies (Table No. 37).

The first of these raids, the heaviest so far made on the German capital, was the only one to cause widespread damage. Australians from Nos. 460 and 467 reported good flying conditions and praised the work of the

Pathfinders which resulted in swift concentrated bombing and apparent saturation of the enemy defences. Fires began to get out of control in south-western suburbs where radio, optical and aircraft instrument factories were situated. This outstanding attack raised many hopes, but the next raid lacked precision and most of the bombs fell in open country, while on the night of 29th-30th March very bad weather forced three R.A.A.F. crews to abandon the sortie before reaching Berlin. Many other Australians encountered icing conditions and had to modify their flight plan with the result that a badly-marshalled stream of bombers reached Berlin. Finding the target covered with dense cloud, crews were forced to bomb on inadequate markers so that the bombs were scattered over a wide area causing isolated damage only.

TABLE No. 37

BERLIN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Mar 1- 2	302	251	460 467	13 9	12 9	610	17	— —
Mar 27-28	396	329	460 467	11 10	10 10	873	9	— —
Mar 29-30	329	213	460 467	9 12	7 11	578	21	2 —

Further attacks on Berlin were now deferred until the lengthening autumn nights should give greater security for the bombers, but other targets at equal distance but with less well-established defences were subjected to irregular attacks. Two unsuccessful attempts were made to bomb the Skoda arms works at Pilsen in Czechoslovakia (Table No. 38).

Both of these raids were staged during full moon periods in the hope that the target could be identified visually, and to offset the danger from fighters, full-scale diversionary raids were made on cities in western Germany. Thus on 16th-17th April 225 bombers, including ten Wellingtons of No. 466, attacked the I.G. Farben plants at Mannheim and started large fires. This diversion was indeed more successful than the main effort because Australian and other crews reported navigational difficulties in locating distant Pilsen. One Australian bombed Nuremberg, two others searched over a wide area without finding the Pathfinder flares and then set course for base, attacking Erlangen and Koblenz en route. Night fighters harried the Lancasters which found that the bright moonlight was

a hazard outweighing the expected advantage of easier navigation, and this view appears substantiated by the heavy losses. To add to these disappointments the Pathfinder flares were misplaced and most of the bombs fell on a small town south-west of Pilsen.

TABLE NO. 38

PILSEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Apr 16-17	327	242	460 467	15 17	15 17	617	37	3 2
May 13-14	168	141	467	17	17	527	9	1

On 13th-14th May the second attempt was made by No. 5 Group with a much smaller force while a heavy attack was being made on Bochum. Pathfinder track markers were laid to lead the bombers to Pilsen and this time the target indicators appeared well placed, but they lay in fact over a mile away from the Skoda works, which again escaped with negligible damage.

TABLE NO. 39

STETTIN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Apr 20-21	339	304	460 467	17 13	16 13	782	22	3 —

All three Australian squadrons joined in an attack against Kiel on 4th-5th April, but in bad weather only poor results were gained. On 20th-21st April, however, greater success was recorded at Stettin (Table No. 39), which was the main enemy supply port for the northern front in Russia. This attack, together with a vast increase in mine-laying at this period, was considered the most effective way in which Bomber Command

could hinder the expected German summer offensive in this area. A small-scale raid was made the same night on Rostock, while eleven aircraft were sent as a diversion against Berlin. This trick appeared to succeed for the German Air Force, always hypersensitive concerning defence of the capital, did not interfere at Stettin.

The Lancasters flew to and from Stettin at low level over the sea to avoid detection by enemy radar, but they were hotly attacked by German anti-aircraft ships in the Baltic and four R.A.A.F. aircraft flew home badly damaged. They arrived in compact order over the target, however, and concentrated bombing soon started huge fires which the ground defenders could not keep under control; the southern part of the city, including 100 acres of closely-packed industrial buildings, was completely burnt.

TABLE NO. 40

SPEZIA

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Apr 13-14	211	193	460 467	13 15	13 15	505	3	— —
Apr 18-19	178	164	460 467	12 12	12 12	433	1	— —
Jun 23-24	53	49	467	7	7	117	—	—

Early in January 1943 targets in northern Italy had been accorded first priority after Berlin and full-scale raids on German industrial cities. In the Casablanca directive these towns were to be attacked "on demand" especially in connection with amphibious operations. The British Admiralty subsequently requested a heavy attack on Spezia (Table No. 40), the Italian naval base in the Gulf of Genoa, where three battleships were located. Harris was reluctant to divert his bombers from their preoccupation with German targets, especially as previous experience in attacking the battle cruisers *Scharnhorst* and *Gneisenau* at Brest suggested that the chances of doing serious damage with existing bombs was remote. Nevertheless three raids were made on the port.

As in previous raids against Italy defences were weak. Only one air combat was reported by the Australians, gun defences were soon confused by the large number of aircraft over the target, and the chief disadvantage of all three nights was an artificial smokescreen which shrouded the port area. The battleships escaped damage but many storehouses and buildings

were destroyed in the first raid, while a destroyer was sunk and a large torpedo workshop badly damaged in the second.

The third attack in June did very little extra damage but it has special importance in that it was executed by a small force of Lancasters of No. 5 Group returning from Blida in Algeria. This force, originally of sixty Lancasters, had been dispatched to attack Friedrichshafen on 20th June under the leadership of Wing Commander Gomm of No. 467 which supplied eight aircraft for this experimental flight. Gomm acted as "Master of Ceremonies", as the role inaugurated by Gibson in the dams raid a month earlier had become dubbed. The force arrived over Friedrichshafen in bright moonlight and Gomm, being dissatisfied with the Pathfinder target indicators which had fallen from one-quarter to one and a half miles east of the Zeppelin workshops, himself marked the target from a low level and then ordered the main force to attack. When Pathfinder backing-up flares again fell wide Gomm computed a "false" wind which he instructed bomb aimers to use and thus correct the ground error.¹ This closely-controlled raid was hearteningly successful causing serious damage to the radio and radar workshops housed in the Zeppelin sheds. The force then flew on to North Africa thus outwitting the German night fighters which were sent to intercept on the assumed homeward route to England. This flight successfully proved that Allied gains in the Mediterranean could give valuable tactical freedom to Bomber Command, although the resources of Blida at that time were badly strained to deal with even this small force of bombers. There was a shortage of bombs for the attack on Spezia, and arrangements for briefing aircrews fell far below the normal requirements of Bomber Command.

Between March and July 1943 therefore, the R.A.A.F. bomber squadrons had taken a steady proportional part in the night offensive against Germany herself, in addition to raids against France and Italy. No. 460 operated on 46 nights during this period and dispatched 597 Lancasters against main targets in Germany and another 20 to lay mines off her coasts. No. 466 whose Wellingtons could not be sent against targets at long range, dispatched 345 aircraft on 27 nights against towns, but also operated on 26 nights to conduct 121 mine-laying missions. No. 467 sent 555 Lancasters on 42 area raids and 14 others laid mines. The burden of casualties fell heavily on No. 460, which lost twenty-nine crews, a loss greater than the total aircrew strength of the unit at the beginning of this series of raids. No. 466 lost twenty crews which again represented

¹ The fall of a bomb is affected by certain variables such as the speed, altitude and attitude of the aircraft at the release point, atmospheric pressure and the direction and speed of movement of the air mass through which the bomb is falling. When these variables are known, the bomb aimer is able to set up his bomb-sight to compensate for these factors (leaving only the ever-present human error) and the bomb should reach the desired target. In this instance Gomm realised that if a sight was taken on the displaced marker, only those bomb-sights with a particular incorrect wind direction and velocity set in would cause the bombs to strike the correct area. The desired result is obtained by first estimating the bearing and distance of the marker from the target and then using the true wind direction and velocity as a starting point, calculating the necessary data which, once set up in the bomb-sight (i.e. a false wind), would cause the bomb to be deflected from the aiming point (the displaced marker) and explode on a point at the required bearing and distance from it.

Gomm was actually the deputy leader but took over from Gp Capt Slee (who had led the earlier Le Creusot raid) whose Lancaster was forced to return with engine trouble.

approximately 5 per cent casualties against inland targets. Although severe, this rate suffered by Nos. 460 and 466 was much the same as that for main bomber force squadrons at this time. On the other hand No. 467 lost only 13 crews or 2.3 per cent of sorties against the same objectives. All three squadrons showed great pertinacity in attack, very few crews failing to find the target even in bad weather. The leadership of C. E. Martin, Bailey, Gomm and their flight commanders, the emphasis which all placed on training and tactics, smooth-running squadron administration and inspired loyal efforts by technical and other ground staffs, all contributed to this efficiency in action.

CHAPTER 19

FIGHTER COMMAND: JANUARY TO SEPTEMBER 1943

DESPITE successive transfers of squadrons during 1942 to Malta, the Western Desert, India, the South-West Pacific and North Africa, Fighter Command had steadily maintained its strength. Air Marshal Leigh-Mallory,¹ who succeeded Air Marshal Sholto Douglas on 28th November 1942 as Air Officer Commanding-in-Chief, still controlled, in January 1943, 102 operational squadrons. This force was admittedly more than enough to ensure its original function of defending Britain from air attack, especially as, after Stalingrad, Alamein and the invasion of Algeria, Germany appeared incapable of renewing a heavy air offensive in any theatre of war. In local air fighting the tactical balance had been restored with the appearance of Spitfire IX and Typhoon fighters which could match the FW-190 in pace and manoeuvrability. Relatively light losses sustained during 1942 had been more than replaced by an efficient training program and from industrial production. There was indeed such a surplus of pilots basically trained on single-engined aircraft that many were retrained for employment on light or medium bombers. At the same time pilots who could be absorbed within Fighter Command were given increasingly-specialised training in tactics before they were posted to squadrons. The days of urgency when pilots were thrown into battle with minimum experience were long past.

An increasing number of American squadrons was now operating from Britain and this circumstance further enhanced the ascendancy of Fighter Command. Leigh-Mallory was determined to use this numerical and material superiority to strike as hard, as often, and in as many ways as possible. Radar stations in Kent were established to warn Allied fighters operating over the Continent whenever enemy aircraft rose from their bases. Direct fighter control from the ground, hitherto used for defensive night and day fighting, was thus extended into offensive operations. Continuous pressure was essential as air forces can only seize and retain the initiative by positive action, because there is no full air analogy with the naval concept of a "fleet-in-being". Once air superiority over enemy territory had been gained, then the combined bomber offensive forecast by the Casablanca conference could proceed with minimum interference from the enemy. The strategic aim was thus no longer merely to hold German fighters away from the Russian front, but also to keep over-stretched the ever-mounting German defensive air measures against Allied bombing.

British single-engined fighters had been designed primarily for defence and had a short radius of action, not well suited for deep penetration of enemy territory. This fault was to some extent palliated by the use of

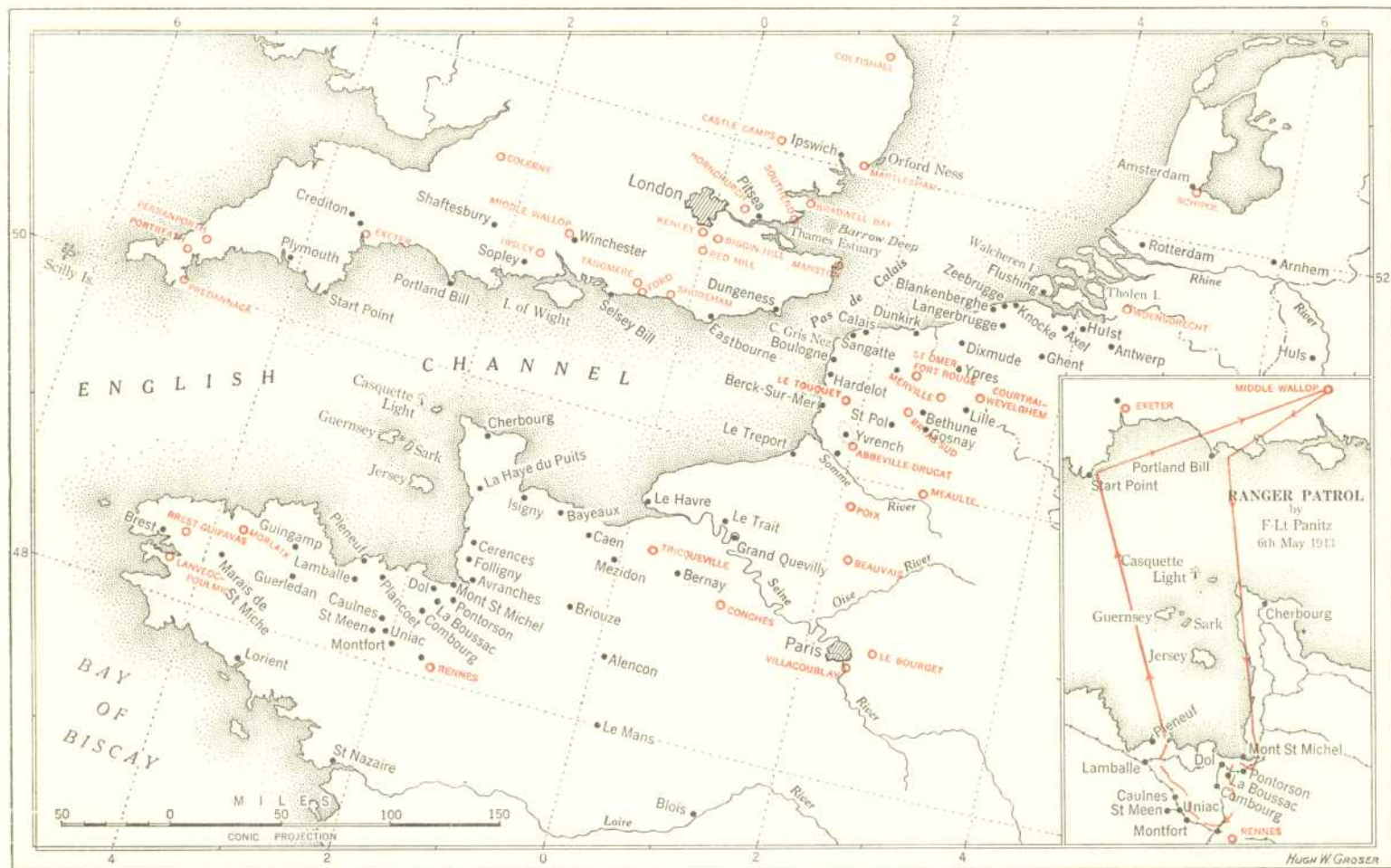
¹ Air Chief Marshal Sir Trafford Leigh-Mallory, KCB, DSO. (1914-18: Lt Lancers Fusiliers 1914-16, Maj RFC 1916-18.) AOC 12 Gp Fighter Cdn 1940-41, 11 Gp Fighter Cdn 1941-42; AOC-in-C Fighter Cdn 1942-43; Air C-in-C Allied Expeditionary AF 1943-44; b. 1892. Killed in aircraft accident 14 Nov 1944.

auxiliary petrol tanks, but even then full escort could not be given to American raids against Germany. Complicated operations were thus planned by which many minor raids were launched against fringe targets to lure German fighters into the air prematurely before major raids requiring deep penetration of the Continent. Fighters swept ahead of the main bomber force, others gave close escort as long as possible, fresh squadrons met the bombers at an equal distance on return and finally "delousing" squadrons prevented pursuit during this withdrawal and gave protection to stragglers. The timing of each such phase in a typical day's operation was of tremendous importance, and as the Germans began to distinguish between feint and real attacks, ever more complex operations were undertaken to guard the main attacking force. These could seldom be attempted during winter months, but plans were made in advance for a full resumption of the offensive in the spring of 1943. Independent operations developed from the earlier Rhubarbs were also projected by day and night against enemy air, rail and sea communications, and vulnerable electric power and radio stations in enemy-occupied countries. These forced the *Luftwaffe* to spread its resources and thus gave additional indirect protection to bombing raids.

The Australian contribution was not as large comparatively in Fighter Command as in other commands. One single-engined day-fighter squadron and one twin-engined night-fighter squadron of the R.A.A.F. served actively throughout 1943, each on a variety of tasks which in episodic fashion illustrate many facets of the complete task of the Command. A limited number of individuals were scattered among the R.A.F. squadrons. Many more Australian pilots of single-engined fighters completed operational training during the year, but could not be absorbed into existing squadrons. They either went overseas or were held in reserve post-graduate formations, which by December contained over 1,000 pilots of all nationalities. Had the strategic background of the war been otherwise, it would have been simple to create new R.A.A.F. fighter squadrons, but neither Fighter Command nor R.A.A.F. requirements called for such a development.² Consequently the Australian effort remained dispersed and relatively small in size.

For No. 453 Squadron R.A.A.F. the year began quietly and few offensive operations were attempted during January on account of unsuitable weather. On 2nd January Squadron Leader Ratten led twelve Spitfires on a sweep west of Le Havre. This was intended as a diversion in support of an abortive light-bomber attack against Cherbourg, but no enemy opposition was encountered. During the next three days forty-six sorties were flown in support of convoys but all flying then ceased until the 9th when the squadron formed part of the first escort echelon for twelve Bostons sent to bomb the airfield at Abbeville-Drucat. Again the bombers turned back before reaching the target. Four days later, when the main attack

² 465 Sqn was originally earmarked as a fighter sqn to be equipped with Typhoon aircraft. Under the "Williams' Plan" it was re-allocated as a future hvy-bomber sqn. In fact this sqn was never formed.



Fighter Command: Australian activities, 1943.

was an early afternoon raid by seventy-two American Fortresses against the Fives locomotive works at Lille, the Australians set off at noon with Bostons dispatched to attack St Omer-Fort Rouge airfield. The Circus reached its objective but the bombers were away again before there was any German air reaction, although one Spitfire was damaged by gun fire while crossing the coast. For the rest of the month only 128 defensive convoy and standing patrols were flown. Squadron Leader Ratten was absent for most of the month, having been chosen to attend the initial course of the Fighter Leaders' School at Chedworth.³ An epidemic of feverish colds among the Australians also kept the squadron below strength. On 23rd January, at the height of this outbreak, thirteen pilots were confined to bed so that it was difficult even to maintain the defensive commitment.

High winds continued into February, but, although the monthly flying total declined from 262 to 180 hours, the Australians joined in seven offensive operations. At 10.15 a.m. on 3rd February, Flight Lieutenant Barclay⁴ led No. 453 in a Circus projected against the airfield at Courtrai-Wevelghem. Dense low cloud blanketed the target and the Venturas finally abandoned the attack only to be hotly engaged by FW-190's after No. 453 and two other escorting squadrons had been forced to return to base because their fuel was low. German fighter pilots were maintaining their successful and economical practice of challenging these raids only when local tactical conditions were in their favour. The same afternoon Ratten, who arrived back at lunch-time, led the Australians in a similar attack against marshallng yards at Abbeville, but the enemy could not be drawn into combat. Fog, low cloud and intermittent gales made large-scale operations impracticable in the next twelve days. Whenever possible defensive patrols were maintained, although these were largely ineffective against enemy tip-and-run raids in poor visibility. Thus on 9th February, although a section of Spitfires was actually patrolling over Southend, a single Dornier 217 sneaked in to machine-gun the airfield at low level and escaped out to sea before it could be intercepted.

This frustration ended on 15th February when Fighter Command began a series of attacks against a 5,000-ton ship then sheltering in Dunkirk. This vessel had first been discovered in the Baltic fitting out as an armed merchant cruiser. On 8th February it was seen south-bound off the Dutch coast, and two nights later Flying Officer Musgrave⁵ of No. 137 Squadron R.A.F. drove it into Boulogne. Musgrave had already flown a large number of fighter-bomber sorties in Whirlwind aircraft both by day and night to attack locomotives, barges and airfields in Belgium and France. On 10th-11th February against this far more formidable target

³ On 15 Dec 1942 AOC-in-C Fighter Cd asked the Air Ministry for "a training establishment to specialise in the higher tactical training of fighter pilots . . . the aim being to raise the standard of fighter leadership and to inculcate the true offensive spirit".

⁴ Sqn Ldr K. M. Barclay, DFC, 407662. 79 and 66 Sqns RAF; comd 453 Sqn 1943; 457 Sqn; comd 452 Sqn 1945. Clerk; of Peterborough, SA; b. Gladstone, SA, 27 Sep 1920.

⁵ F-O E. L. Musgrave, DFC, 403528; 137 Sqn RAF. Salesman; of Bankstown, NSW; b. Sydney, 26 Feb 1918. Killed in action 18 May 1943.

he showed rugged fearlessness and skill of a high order. As he dived down to attack he was opposed by guns on the ship and others on shore, but not satisfied with his approach he coolly made a second circuit and finally dropped his bombs from mast-head altitude. After this damaging attack the ship retired under cover of darkness on 13th-14th February from Boulogne to Dunkirk. Leigh-Mallory proposed to attack it with Circus formations, because the war at sea was moving towards a climax when even one German auxiliary-cruiser might do great damage in distant waters because of the difficulty of bringing her to action in the vast spaces of the sea. Accordingly the Australian Spitfires set out at 12.30 p.m. on 15th February with a force of Boston bombers. This force could not attack, however, as dense cloud covered Dunkirk, but two other formations bombed the vessel later the same afternoon.

Bad weather again intervened until 26th February when persistent attempts were made to destroy the enemy ship. A first attack, in which No. 453 Squadron flew with No. 464 R.A.A.F. (Venturas), was abandoned, but an hour later the weather had improved sufficiently to allow a new force of Venturas to bomb the target, and both R.A.A.F. squadrons again returned in the afternoon for yet another attack. On none of these occasions did No. 453 Squadron meet any air resistance, although the "mopping-up" wing which covered the withdrawal of the main formations twice joined combat with FW-190's. A larger Circus of twenty-four Venturas returned to Dunkirk next day but again, apart from ground gun fire, the Australians met no opposition. The ship had actually sailed that morning northwards towards the Baltic, and the Venturas attacked a variety of alternative targets in Dunkirk, the six aircraft of No. 464 Squadron concentrating on marshalling yards and railway sidings. Although the ship had escaped, the obvious enemy intention to pass this vessel down the Channel to one of the Biscay ports had been frustrated.

During the first fortnight in March No. 453 Squadron was attached to the defending side in large-scale military manoeuvres in the United Kingdom. From the R.A.F. viewpoint the salient feature was an attempt to test the tactical lessons of air support learnt in North Africa, but now applied in conditions resembling those which would prevail in an invasion of Europe. The R.A.A.F. Spitfires flew 178 sorties on simulated reconnaissance, escort and ground-strafting duties and acquitted themselves well. The pilots were very pleased, however, when real operations began again on 14th March although the first sweep during the early afternoon in the Berck-St Omer-Sangatte area was uneventful. Later the same day the Australians escorted Whirlwind fighter-bombers (No. 137 Squadron) in a Ramrod attack against Abbeville-Drucat airfield. Bombs fell in a dispersal area on the north-east side of the airfield but there was no challenge from the *Luftwaffe* even though a Whirlwind fell behind the formation and was shepherded home by one section of No. 453. Ten days of defensive patrols off Barrow Deep intervened before the Australians were again detailed for operations over France.

On 27th March No. 453 Squadron moved from Southend to Hornchurch and at the same time began to re-equip with Spitfire IX aircraft. This heralded employment on a far wider range of tasks than previously. Within a week the Australians were ready to join in the rapidly-increasing tempo of operations against the Continent and after an uneventful Rodeo on 3rd April flew twice the next day. The morning Roadstead against Calais was unsuccessful but during the afternoon eight Whirlwinds bombed Abbeville. No. 453 saw eight FW-190's in the distance over Berck although no combat resulted. Withdrawal cover was given to a large American force returning from Antwerp on 5th April but it was not until three days later that for the first time in five months the Australians actually met air opposition. Ratten was leading Hornchurch Wing near Abbeville when the ground-control station warned him of the approach of enemy aircraft. Six FW-190's were seen but these quickly dived away into cloud. Soon afterwards eight more FW-190's were seen near Yvrench flying at 15,000 feet. Ratten instructed No. 122 Squadron R.A.F. to remain up-sun at 27,000 feet while the Australians dived down to attack. In a brief encounter both Ratten and Flight Lieutenant Andrews damaged one of the enemy machines, but only two other pilots fired their guns. As the enemy quickly evaded into cloud, No. 453 re-formed, climbed swiftly and crossed out of France over the Somme Estuary.

This brief glimpse of action was not quickly repeated as the heavily-outnumbered German fighter pilots became ever-more reluctant to give battle. During April the Australians flew twelve more offensive operations, mostly in conjunction with bomber or dive-bomber formations, but once (on 18th April) in support of a Coastal Command anti-shipping strike. On three occasions German aircraft were seen; but on the 17th near Abbeville, the only time when they attempted to attack the bombers, these had already been engaged by other Spitfires before Ratten could bring Hornchurch Wing into position. Despite this dearth of positive interest the R.A.A.F. pilots appreciated their part in the increasing, coordinated offensive. There was intrinsic value in the repeated small attacks against "fringe" targets, but the main strategic aim was to saturate enemy defences and thus make possible far more telling blows against major targets.

May was a busy but disappointing month for the Australians who flew 308 sorties without the positive satisfaction of battle. Operations began badly when cloud conditions spoilt an attack against railway marshalling yards at Caen. Dense cloud lay west of a line between Shoreham and Le Havre and the Hornchurch Wing flew above this sheet without seeing anything and finally withdrew. On 3rd May a tragic and costly failure occurred. The Australians were detailed as target-support fighters for an attack by eleven Venturas of No. 487 Squadron R.N.Z.A.F. against a power house at Amsterdam. No. 453 was recalled when within thirty miles of the Dutch coast, but the bombers and their close escort were met by approximately sixty enemy fighters. The Ramrod formation was split up and all except one of the bombers were shot down. Nor was the consequent feeling of frustration lightened when, on 7th May during a

Rodeo of four wings over the Pas de Calais, only the Hornchurch Wing went unchallenged. On 8th May, however, Sergeant Williams^a of No. 122 Squadron R.A.F. shot down near Pitsea one of six Ju-88's which made opportunist medium-level forays in the Thames Estuary.

During this brief lull Ratten was promoted to command the Hornchurch Wing, while Barclay immediately replaced him as commanding officer of No. 453 Squadron. Ratten was thus the first R.A.A.F. pilot to control a wing of Fighter Command, and this well-merited honour put into perspective the true nature of air fighting and indirect pressure at that time. Ratten, like No. 453, had only a small tally of personal victories in air combat, but he had shown skill and tactical sense in clearing the way so that bombers could reach their target unmolested. In 1943 this was equally as important as had been the dog-fights of attrition between opposing fighters in 1941. Ratten's promotion also heartened the other Australian pilots to accept and appreciate their relatively unspectacular role which was nevertheless an important and integral part of the complete Allied air plan.

On 11th May an unsuccessful Circus was mounted against railway facilities at Boulogne but two days later the operation was repeated this time with good bombing results. The Hornchurch Wing saw several German fighters but on each occasion they were already engaged by other Spitfires. Later on 13th May a complicated series of operations was staged. At 3 p.m. 72 American Fortresses and 88 Thunderbolts swept along the Dutch coast, simulated a withdrawal into Britain and then crossed into France to attack two airfields. Soon afterwards the main force of 97 Fortresses covered by 147 Spitfires trailed its coat off Cherbourg, turned back to Dungeness, and then set course to bomb the Potez aircraft factory at Méaulte. Ratten led Nos. 122 and 453 as first high-cover wing for the Fortresses until after they had bombed, when he took over escort duties with one of the two "gaggles" into which the force split while withdrawing. Enemy aircraft were seen in two's and three's but none attempted to close in and were ignored as possible decoys to draw off the Spitfires and thus permit a heavy surprise attack against the bombers. Next day, when smaller formations of Fortresses attacked Courtrai and Antwerp, Hornchurch Wing covered the withdrawal of the second operation. Ratten reached Walcheren Island at 1.25 p.m. and was advised by radio that the Fortresses and their close escort of American Thunderbolts were already heavily engaged by enemy fighters, so he led Nos. 122 and 453 between Antwerp and Flushing to arrive behind the main formation where straggling bombers were being fiercely attacked. Instructing the R.A.A.F. squadron to remain as top cover, Ratten led No. 122 down and split up the enemy fighters, keeping them engaged in dog-fights until the bombers had successfully withdrawn. In addition to one FW-190 jointly

^a W-O R. S. Williams, 408667; 122 Sqn RAF. Clerk; of Hawthorn, Vic; b. Hawthorn, 25 Aug 1920.

destroyed by Ratten and another pilot, two German fighters were claimed as damaged by No. 122 Squadron. A Circus against Poix on 15th May was followed next day by a morning sweep near Abbeville and then a Circus at Tricqueville, but although some enemy fighters rose to oppose each of these operations, the Australians had no combats.

The main activity on 17th May centred on an attack by American Fortresses and Liberators against Lorient and Bordeaux. Shortly after 10 a.m., during a Circus designed temporarily to ground German fighters at Caen, Sergeant Lancaster⁷ of No. 611 Squadron R.A.F. shot down one Me-109. Hornchurch Wing was also out that morning, escorting the Fortresses to Cherbourg and sweeping back as far as Isigny to prevent any pursuit. The Australians were then temporarily restricted to local-defence duties during a transfer of the other Hornchurch squadrons but they resumed active operations on 19th May. At 2 p.m. that day Ratten led a sweep between Le Touquet and Sangatte and later another from St Omer to Le Touquet. In both cases enemy reaction was slow and although many fighters were reported by ground controllers, none approached the Spitfires.

The same conditions prevailed during a sweep on 20th May and a bombing attack against coke ovens and a benzol plant at Zeebrugge on 23rd May, but two days later when the target was the oft-visited airfield at Abbeville, a general mêlée developed near Le Tréport. Hornchurch Wing was on a high-level sweep at the time but hastened to the area. The Australians kept guard at 35,000 feet while No. 122 Squadron R.A.F. dived down to investigate but enemy aircraft and Spitfires were so badly mixed up that the wing was withdrawn without being engaged. On 26th May Barclay led the wing over the Blankenberghe-Ypres-Calais triangle and a similar area was patrolled the following day with only a few German fighters seen at a distance. On 29th May while covering the withdrawal of seventy-nine American Fortresses which had attacked the Rennes airfield, the Australians had the satisfaction of driving off several small groups of German fighters which hung around the skirts of the formation awaiting stragglers.⁸ Barclay and Sergeant Morath⁹ detached themselves to attack two particularly persistent FW-190's but though they fired at long range they made no claims because the enemy dived away and were not seen again. On 31st May two Circuses, first to Caen airfield and then to the Dornier aircraft factory at Flushing, ended the month's work for No. 453 but again there was no incident. Lancaster of No. 611 Squadron was again prominent on 30th May, when the Biggin Hill Wing was challenged near Tricqueville and he shot down one of four FW-190's destroyed in the battle.

⁷ F-Lt V. A. Lancaster, DFC, 409149. 611 Sqn RAF, 453 Sqn. Tiler; of North Fitzroy, Vic; b. East Melbourne, 21 Sep 1918.

⁸ This attack against Rennes was merely a cover for a much heavier attack against St Nazaire and La Pallice.

⁹ F-O F. A. Morath, 413000. 453 Sqn, 116 Sqn RAF. Bank clerk; of Narrabri, NSW; b. Narrabri, 27 Dec 1919.

Only two operations were undertaken by No. 453 Squadron during the first ten days of June but both showed a welcome change of fortune. Barclay was leading Hornchurch Wing on 1st June when a short skirmish with German fighters developed near Hardelot. Three days later after an unsuccessful attempt to overtake six FW-190's near St Pol, Ratten sighted twelve Focke-Wulfs diving towards the Somme Estuary. He instructed No. 122 Squadron to remain as high cover and led the R.A.A.F. Spitfires in pursuit, at the same time reporting a further twenty FW-190's approaching from the south. As the Australians came within firing range the united enemy formation swung to starboard but could not escape. Ratten fired at two aircraft and then, although one of his cannon had jammed, he pressed home an attack on a third which burst into flames and crashed near Forêt de Crecy. Barclay had meanwhile attacked the rear port enemy section from dead astern and secured cannon and machine-gun strikes on one aircraft, while Andrews damaged a third. The German fighters made no attempt to turn and face these attacks and finally disengaged and flew away southward. About the same time twenty FW-190 fighter bombers were over Eastbourne in a surprise attack which caused considerable damage. Flying Officer D. H. Smith (No. 41 Squadron, R.A.F.), who had just resumed operations after recovery from injuries sustained at Malta, led his section in pursuit and managed to damage one before the rest escaped out to sea.

On 10th June No. 453 Squadron acted as withdrawal support to bombers returning from Langerbrugge. Similar duties were allocated on the following two days for Ramrods directed against power stations at Gosnay¹ and Grand Quevilly while on 13th June the Australians flew first as high cover to a Ramrod against Flushing and then in a sweep covering an afternoon attack on Abbeville. Yet another uneventful sweep on 15th June was followed two days later by a morning attack on Flushing when No. 453 failed to overtake enemy fighters seen near Ghent. The same afternoon a series of correlated sweeps over Belgium caused considerable enemy reaction and Ratten manoeuvred the Hornchurch Wing above some fifteen FW-190's in the Axel-Hulst area before diving down to attack with No. 453 Squadron. Five pilots fired but mostly at long range, as, although the Australians approached out of the sun, the enemy quickly turned tail. Andrews, however, leading Blue Section, was able to get to close quarters and he severely damaged one FW-190 which disappeared in a vertical dive although it was not observed to crash.

After an uneventful Circus at Poix airfield on 20th June, No. 453 Squadron was again in combat two days later when acting as withdrawal support for a very heavy American attack against the Huls chemical works. Barclay was leading Hornchurch Wing which made rendezvous near Rotterdam just as one of the leading bombers was shot down. The Spitfires dived down and five pilots fired at individual German fighters, damaging one before the FW-190's fell back. The wing then rejoined the

¹"Fighter Command Intelligence Summary No. 395, Appendix A," reports that the 12 Bostons returned from Gosnay without dropping bombs as weather conditions were unfavourable.

American Fortresses and escorted them safely back to Ipswich. In this fight the Australians lost their first pilot in combat for over six months and only the seventh during the whole year of the squadron's existence. On 27th June, in its last sortie before transferring to No. 10 Group, No. 453 had one final combat. Hornchurch Wing was engaged in a Rodeo between Boulogne and Calais when Barclay and Pilot Officer Ferguson² broke away and attacked four Me-109's near Béthune. Ferguson attacked the rear aircraft of the enemy port section from astern. He continued to fire until the range closed to 200 yards when the Messerschmitt burst into flames, rolled on its side and went down in a skidding vertical dive. Barclay heavily damaged a second aircraft, which flicked over on its back and dived away with smoke pouring from it but it was not seen to crash.

The move to Ibsley seemed a step away from offensive operations, especially as the squadron reverted to Spitfire Mark V's. In fact the Australians found that far from being withdrawn from the line, they were to fly with the same intensity and much the same opportunity as at Hornchurch. For a few days only defensive and convoy patrols were flown but on 4th July came the first of a series of armed reconnaissances over the enemy-occupied Channel Islands. These patrols, in conjunction with Hurricanes firing cannon and rocket-projectiles, were flown at very low level from Casquette Light to Sark, Guernsey and Jersey in order to restrict enemy shipping movements. Five patrols during July and three more during August failed to discover any targets. It was apparent that German-controlled ships could now move only by night, and these flights, however negative, discouraged any return to daylight sailings. This type of activity was also attempted by German fighters against British coastal convoys but with far less success, although it entailed No. 10 Group maintaining frequent defensive patrols. The Australians flew regularly on these duties but had no contact with the enemy, although on 30th July Flight Sergeant Vance³ of No. 165 Squadron R.A.F. stationed at Exeter, intercepted and shot down an FW-190 fighter-bomber near Plymouth.

American daylight operations against western France had broadened the front on which Fighter Command based its offensive, previously restricted almost entirely to No. 11 Group. On 10th July No. 453 formed part of the third forward-support wing for a projected Fortress attack against Le Mans.⁴ The Ibsley Wing (Nos. 165, 453 and 616 Squadrons) met the bombers about twenty miles north-west of Le Havre as they were withdrawing in three "boxes" and escorted them to Selsey Bill. Three days later Ibsley Wing operated from Predannack in Cornwall for a medium-bomber attack on Brest-Guipavas airfield. This diversion was to cover the return of a strong force of Lancasters which had bombed Turin during the previous night. The principle of tactical flexibility was well demon-

² F-Lt J. H. Ferguson, 403917; 453 Sqn. Bank clerk; of Gosford, NSW; b. Rupanyup, Vic, 9 Jan 1921.

³ F-Lt T. A. Vance, DFC, 409349. 165 Sqn RAF, 452 Sqn. Student; of Melbourne; b. Yeronga, Qld, 17 Mar 1923.

⁴ Craven and Cate (Editors), *Army Air Forces in World War II*, Vol II (1949), p. 846, remark that the Fortresses did not bomb Le Mans. Seventy bombed the Caen and Abbeville airfields but the remainder (213) returned without attacking any target.

strated the next day when R.A.A.F. Spitfires were supporting Fortresses withdrawing from Le Bourget and Villacoublay. Two formations were met near Bernay and escorted across the Channel and then the wing turned back to assist the third group of bombers. One damaged Fortress was lagging badly behind so Andrews detached one section of No. 453 Squadron which reduced speed and accompanied the bomber until it ditched in the sea fifteen miles south of Ford. A radio fix was given on the air-sea rescue wavelength before the Spitfires, now very short of petrol, finally returned to base.

On 16th July Ibsley Wing flew to Redhill but the projected operation was cancelled and this became an almost daily occurrence because of bad weather until 25th July. Then the Australians set out from Bradwell Bay in No. 11 Group as escort cover for eighteen American Marauders bombing coke ovens at Ghent. Barclay made contact with the bombers over Orfordness and at 3 p.m. the whole formation crossed into enemy territory at Zeebrugge. Enemy aircraft were seen in twos and threes and several R.A.A.F. pilots were in combat, Ferguson and Flying Officer Ewins⁵ each damaging an FW-190. None of the enemy fighters succeeded in breaking through to the bombers which completed their mission, and all returned safely. Barclay again led Ibsley Wing from Bradwell Bay next morning in a Ramrod against St Omer airfield, as a preliminary to a large-scale American attack on targets in north-western Germany. Two days later No. 453 operated from Bradwell Bay in the morning and from Coltishall in No. 12 Group during the afternoon for two successful attacks against coke ovens at Zeebrugge and the airfield at Schipol, and again from Coltishall on 28th July when Bostons bombed the Fokker aircraft factory at Amsterdam. The same afternoon Ibsley Wing moved to Tangmere but the proposed operation was cancelled and it next operated from Martlesham on 30th July as close escort to American Marauders attacking Woensdrecht airfield. On 31st July twelve R.A.A.F. Spitfires set out from Manston to accompany a similar force to Merville airfield. Having flown ninety-one sorties in a week of operations from four bases in other groups, the Australians returned at last to their own airfield.

This maid-of-all-work role continued throughout August for No. 453, which on the 3rd operated from Portreath against Brest-Guipavas and next day flew from Tangmere to support a powerful American attack on Le Trait. On 8th August the enemy U-boat stores at Rennes was the target for Bostons and once again withdrawal cover was given by R.A.A.F. Spitfires. The squadron was then held in readiness to return to No. 11 Group, but two moves were in turn cancelled at the last moment, and No. 453 remained at Ibsley. During this week of uncertainty only defensive patrols were flown, but on 15th August the Australians had an eventful operation from Bradwell Bay as escort cover for American Marauders sent against Woensdrecht.

⁵ Sqn Ldr R. H. S. Ewins, 405117; 453 Sqn. Metallurgist; of Ballarat, Vic; b. Ballarat, 18 Mar 1917.

The bombers were early at the allotted rendezvous and were travelling so fast that the Spitfires caught up with them only over Walcheren, although Barclay as wing leader had requested recall of the bombers in mid-Channel because cloud conditions were manifestly unsuitable. Finally over Tholen the Marauders did turn back, and, as Andrews wheeled No. 453 after them, the Australians were attacked from above by more than a dozen FW-190's. Flying Officer Thornley⁶ was shot down during this initial attack and Andrews found himself separated from his squadron. He was subjected to repeated attacks from ahead, beam and astern which damaged his Spitfire in several places and put the radio-telephone out of action. Unable to call for help Andrews lost height almost to ground level near Walcheren in an attempt to shake off his pursuers, though he now had to face ground fire as well. Gradually the number of enemy aircraft decreased until only four remained attacking the Spitfire, which was making little homeward progress due to the necessity of continually breaking away from the enemy. Up to this point Andrews had had no opportunity to fire his guns, but by the time he was ten miles west of Walcheren, having shaken off another two Focke-Wulfs, he was in a position to turn against the weakening attackers. This unexpected offensive move caused one of the enemy to run directly into his own concentrated fire. A lucky bullet must have killed the German pilot for this aircraft immediately dived into the sea with a tremendous splash and the remaining Focke-Wulf then hurried away at full speed allowing Andrews to return to Manston.

On 16th August Tricqueville airfield was the target and No. 453 then transferred to Predannack for an abortive Ramrod against Brest. Again a heralded move to Martlesham was cancelled at the last moment on the 18th, and instead the squadron prepared to move westwards to Perranporth in Cornwall. From this base only defensive-interception, convoy and air-sea rescue flights occupied the Australians during the remainder of the month with the exception of one offensive patrol on 23rd August off the Brest peninsula to discourage enemy interference with Coastal Command operations. This relative inaction continued during the first week in September and was the more unpalatable because Fighter Command was engaged in the preliminary stages of a vast combined operation designed to give the appearance of an attempt to seize a bridgehead on the continent of Europe. One of the main objects of this ruse was to bring the German Air Force into a large-scale battle. The simulated invasion was made convincing by the assembly of troops, transport and assault craft at ports in southern England, and the intensification of bomber and fighter attacks on airfields, military and industrial targets lying behind the Pas de Calais.

No. 453 Squadron had now no fewer than forty-seven pilots, all of whom longed to participate in these heavy autumn battles. At last, on 7th September, the Australians were attached temporarily to Kenley for the climax of the operation, and after two Ramrods on the 8th flew two sweeps

⁶ F-O F. T. Thornley, 411059; 453 Sqn. Accountant; of Marrickville, NSW; b. Sydney, 21 May 1916. Killed in action 15 Aug 1943.

each of twelve aircraft as the large assault convoy sailed almost to the French coast at Boulogne before retiring under cover of a smoke screen. From the air viewpoint Operation STARKEY failed in its object, for, although 786 Spitfire sorties were devoted to the convoy and to patrol apparent invasion beaches, there was absolutely no enemy reaction to this immense effort. Coastal batteries and gun installations near Boulogne were attacked by nearly 300 light bombers without air opposition. Other attacks during the day on thirteen enemy airfields by 340 four-engined and 85 light and fighter-bombers supported by 550 fighters did goad the small total of 150 enemy aircraft into the air. In these airfield attacks No. 453 accompanied Mitchell bombers against Bryas-Sud but although they were warned of enemy fighters by ground control none were seen. Only two German aircraft were claimed as destroyed during the whole day and the plan to cripple enemy air strength in battle had obviously misfired despite encouraging results achieved during the previous three weeks.

The Australians returned to Perranporth and resumed their uneventful routine duties until 22nd September when No. 453 formed part of the escort to twelve Mitchells bombing Brest-Guipavas. Next day from Tangmere support was given to American Marauders sent to Conches airfield, and on the 24th Lanveoc-Poulmic and Brest-Guipavas airfields were similarly attacked. A final attack against Brest was made on 25th September and the month ended quietly, although the total of 249 operational sorties was in fact the fourth highest of the squadron's existence. Many of the senior pilots were nearing the end of their operational tours and on 28th September Barclay handed over command of No. 453 to Andrews. The squadron itself after a complete year of full operation was due soon to retire to a quiet sector for reorganisation and retraining, but four more attacks against French airfields were made before 11th October when the destination of No. 453 was officially announced as Skeabrae in the Orkney Islands. Only one of these attacks produced opposition; when returning from Beauvais all three pilots in Blue Section of No. 453 fired at and chased away FW-190's which tried to attack the bombers.

Paradoxically just as its time in the front line was almost ended No. 453 achieved its greatest single victory. On 8th October Andrews was leading seven Spitfires on an offensive sweep near Brest. The Australians had almost reached their turning point at 8.30 a.m. when eight Me-110's were seen in formation low on the water. As the Spitfires dived to intercept, the enemy scattered but were easily brought to combat and five of them were shot down, two by Flying Officer McDade,⁷ two by Pilot Officer Leith⁸ and one by Ewins. One Spitfire crashed into the sea early in the engagement and Ewins was forced to bale out, but he was seen to be safe in his dinghy, and was rescued the same afternoon by a launch.

⁷ F-Lt P. V. McDade, DFC, 403000. 167 Sqn RAF, 453 Sqn. Survey assistant; of Casino, NSW; b. Moree, NSW, 22 Jun 1920.

⁸ F-Lt C. R. Leith, DFC, 411790; 453 Sqn. Clerk; of Rose Bay, NSW; b. Labasa, Fiji, 5 May 1922.

The experience of Australians in other normal day-fighter squadrons was not markedly different from that of No. 453. The meteoric career of Squadron Leader Armstrong ended on 5th February 1943, when he was shot down and killed. None of the other Australians scattered among R.A.F. squadrons achieved quite the same eminence. As demonstrated above, team work not individual brilliance was the main theme of the pressure exerted by Fighter Command. Pilots complained that the offensive era was bringing far fewer opportunities for combat than when Fighter Command had been strictly on the defensive. The real value of this large, unremitting and often uneventful campaign was seen in the eclipse of the German Air Force even over part of its own territory. Within range of Spitfires light and heavy bombers could attack any target with confidence. Boredom and constant effort were the price paid for the maintenance of this limited air supremacy.

Fighter Command also began to devote any surplus strength to the exercise of air power against targets in enemy coastal sectors. It was a development not so much of principle as of means and methods, for, whereas fighter-bombers had been included in the Command since late in 1941, the arrival of Mosquito, Typhoon and Whirlwind aircraft and of 40-mm cannon and rocket-projectile weapons added enormously to effective striking power. Throughout 1943 fighter-bomber attacks both by day and night increased swiftly, and although this activity finally passed chiefly to the new Second Tactical Air Force, there was at first no rigid separation of function. The provision of single-engined fighter squadrons was not difficult as low wastage rates both of aircraft and pilots at this time gave considerable reserve power. For twin-engined fighter squadrons the command was forced to look to its existing night-fighter organisation, which had been built up but employed only intermittently during 1942 as enemy effort had fallen to a very low average of nightly sorties. It was now proposed to use this theoretically purely-defensive force in a day-and-night offensive as often as operational conditions would allow—again in accord with the doctrine of tactical flexibility.

The arrival of Mosquito aircraft with Mark V radar equipment brought new heart to No. 456 Squadron R.A.A.F., and, though the first two months of 1943 passed quietly while pilots and observers mastered new techniques, the long apprenticeship in a quiet sector was obviously nearing its close. This was confirmed on 28th February when No. 456 was notified that it would be called upon to undertake Ranger patrols and might also operate as long-range day fighters.⁹ Even the dilution in the national character of the squadron by the arrival of seven R.A.F. crews was gladly welcomed as a sign that action was impending. On 16th March one flight moved to Colerne for Ranger duties but only five uneventful sorties were made before the end of the month when the complete squadron was transferred from Valley to Middle Wallop.

⁹ Ranger patrols were originally night operations against enemy airfields but soon widened to attacks on communication targets by night and day.

Middle Wallop in No. 10 Group was virtually in the front line of the air defensive system and at the same time was an excellent base for offensive operations over northern and western France. The first few weeks were busily employed in settling in and organising routine night patrols between the Isle of Wight and Portland Bill under the control of Sopley Ground-Control Station. A state of six aircraft at readiness each night was required, for, though enemy night effort had been limited, there was nothing to preclude the possibility of sharp concentrated attacks at any time. Three times during the last week of April aircraft were sent up to intercept raiders but on each occasion although accurately vectored by ground control to within range of the enemy, contact was lost before visual identification could be completed. It was indeed becoming patently obvious that Mark V air-interception radar, which gave elevation and azimuthal displacement of the target on one cathode-ray tube and actual range of the enemy on a second tube,¹ was not adequate to deal with the sort of tactics being used by German bombers. The limitation of range by altitude meant that it was exceedingly difficult to pick up and hold low-flying targets; and the slow responses and restricted coverage resulted in the frequent loss of contacts. Other night-fighter squadrons equipped with Mark VIII radar did not suffer from these restrictions, but there was little chance that No. 456 would receive new apparatus for a considerable time owing to the existing urgency of providing radar equipment to Coastal and Bomber Commands whose problems were constant, whereas the lack of radar in Fighter Command was at this time only a minor embarrassment.

The difficulties which crews experienced during training flights with Mark V radar were soon borne out in operations. On 24th April the commanding officer, Wing Commander Dwyer,² sent up one Mosquito to oppose a single enemy bomber. The cloud base was at 800 feet and there was a steady drizzle of rain but the Mosquito was quickly directed on to the enemy flying at 4,000 feet in heavy cloud. At this height the navigator obtained a fleeting contact of an aircraft crossing ahead of him, but he could not follow its course on his instrument. The Mosquito remained searching for some time in turbulent up-draughts and then abandoned the sortie. The enemy had meanwhile entered the adjoining defence sector where it was swiftly shot down by a Mosquito of No. 85 Squadron R.A.F. equipped with Mark VIII radar. Similarly on 28th-29th April when four German bombers approached the English coast No. 456 had no success. One Mosquito searched for a while in poor weather and made no contact. A second crew intercepted one hostile aircraft at 6,000 feet south of the Isle of Wight but contact was lost as the enemy dived low and turned sharply. After a time radar contact was regained but as soon as the fighter closed to 500 yards' range the enemy veered away and escaped before it was actually within sight.

¹ A navigator's strobe control and a pilot's indicator tube were also incorporated in this apparatus. Crews found it cumbersome to use.

² Gp Capt M. H. Dwyer, RAF, Comd 456 Sqn 1943, Central Gunnery School RAF 1943-45. Regular air force off; of Heswall, Cheshire, Eng; b. Kensington, London, 18 Sep 1912.

This limitation of efficiency in their primary role led the R.A.A.F. crews to engage with enthusiasm and energy on Ranger work and they looked in this direction for the action denied them in night fighting. On 16th April Dwyer made a night search for railway targets in the Guingamp-Rennes-Avranches-Folligny-Bayeux areas, but saw nothing except intense light-calibre gunfire near Bayeux. On the following night Warrant Officer Ratcliffe³ patrolled between Lamballe and Alençon and attacked two trains, one of which was brought to a standstill and left enveloped in steam. At the end of the month Flight Lieutenant Panitz⁴ attempted a day Ranger sortie but ran into clear weather and wisely returned to base, but on 6th May he made a particularly brilliant daylight flight during which he made successful attacks on five trains with cannon fire and shot up a sixth with machine-guns. This outstanding success, favoured by ideal cloud conditions,⁵ was nevertheless almost entirely due to the efficient, pugnacious teamwork of Panitz and his observer, Pilot Officer Williams.⁶ This pair had long chafed at their inactive role, and now established, almost in this one day, a new impetus and tradition for the squadron. The dry details of this historic sortie appear in the pilot's report:

Set course for Portland Bill which was crossed at 2.29 p.m. . . . crossed French coast at Mont St Michel at zero feet. Picked up railway near La Boussac west of Pontorson. Followed line and found moving goods train on line about two miles south-east of Dol. One attack made with cannon and machine-gun and nearly all strikes were seen to be on target. The train stopped issuing steam. Single engine seen on line leaving Combours. Made dummy run, engine stopped, fireman and driver ran into woods. Two attacks using cannon and machine-gun made on engine. Many strikes seen and steam to above 100 feet. Returned to Combours and set course for Montfort railway, picked up at St Uniac. Followed railway and saw goods train on branch line St Meen. Two attacks made with cannon and machine-gun. Few strikes seen first attack and good many strikes and steam after second attack. Turned starboard to main railway which was picked up at Caulnes where goods train was found stationary just clear of station. Attack made using machine-guns only. Strikes low on boiler and plenty of steam seen. Continued down line, cloud cover then breaking. Found train about five miles east of Lamballe. Short attack made with cannon and machine-gun. Attack most effective and large column of steam and smoke seen. Went on to Lamballe where three goods trains seen in yard, one moving west; attacked moving train from port quarter, many strikes seen in fire-box, cloud of smoke, then steam, train stopped. At no time was flak seen, but on one stationary goods train in Lamballe one flak waggon was noticed towards rear of train. Crossed French coast at Pleneuf at 1,500 feet, climbing into cloud at 3.35 p.m. About a quarter of an hour after leaving French coast and at about 4,500 feet while in cloud cover crossed through slipstream of an aircraft. Mosquito remained in cloud until it broke and crossed English coast about five miles west of Start Point at 4.10 p.m. Weather over Channel 10/10ths at 800-1,200 feet—over France 10/10ths at 1,000 feet breaking to 7/10ths at 2,000 feet at Lamballe.

³ W-O V. P. Ratcliffe, 403373; 456 Sqn. Clerk; of Randwick, NSW; b. Sydney, 8 Oct 1919. Killed in action 2 Jun 1943.

⁴ W Cdr G. Panitz, DFC, 404891. 456 Sqn; comd 464 Sqn 1944. Master baker; of Southport, Qld; b. Boonah, Qld, 21 Sep 1915. Killed in action 22 Aug 1944.

⁵ These free-lance operations required enough cloud to give security during approach and withdrawal, but not too much to prevent adequate search of an area.

⁶ F-Lt R. S. Williams, DFC, 411411. 456 and 464 Sqn. Storekeeper; of Patonga Beach, NSW; b. Bondi, NSW, 12 Aug 1915. Killed in action 22 Aug 1944.

More than 1,800 French locomotives had gone to Germany before 1943 and the remaining ones had been overworked. Fighter Command set itself the task of swelling the number of disabled locomotives awaiting repair in railway workshops. On 11th May Panitz and Ratcliffe had to abandon day Ranger sorties but both had better fortune on the following day. Panitz found a goods train near La Haye du Puits and after repeated attacks saw large sheets of metal thrown into the air. He then went on to immobilise a second goods train between Cerences and Folligny. At almost the same time Ratcliffe exploded the boiler of a locomotive at Mezidon and then repeated this success near Briouze in the face of light gun fire, but the Mosquito was hit only by one 40-mm shell which damaged the tail wheel. The squadron reverted to night Ranger work and on 15th May one train drawing out of Pleneuf was damaged, while Panitz made a deeper penetration to the Loire area and set on fire two electric trains near Blois. He then drove a supply truck off the road and destroyed it near Rennes. Two nights later Flight Sergeant Samson⁷ heavily damaged another three locomotives near Lamballe. No further successes were gained during the latter half of the month when, in addition to maintaining night-fighter and Ranger patrols, night Intruder sorties were also flown over enemy airfields in the Low Countries to hinder German night-fighter activity. These Intruder flights were to continue for several months and were usually mounted by a small detachment of No. 456 at Castle Camps. No positive success was gained but their indirect value in keeping enemy airfields inoperative was widely recognised, and crews sent on these hazardous duties were buoyed constantly with the hope of palpable results.

The standing night patrols went on unceasingly and on 7th May Flying Officer Oxlade⁸ was chasing an enemy aircraft near Shaftesbury when it dived into the ground through unknown causes before he could open fire. Many of these patrols were flown in conjunction with Bomber Command "Bullseye" exercises, a fact which proved embarrassing on 21st June when four enemy bombers filtered in and were not discovered until bombs began to fall on Winchester. The airborne crews of No. 456 were vectored on to the raiders and three more Mosquitos were swiftly sent up, but, in a confusion of friendly aircraft, only fleeting enemy contacts were obtained and no combats resulted. There continued to be slight and occasional enemy activity in the sector, but the crews, hard as they tried during the next two months, failed to secure any visual sighting which would have given opportunity for attack. Finally on 17th August No. 151 Squadron R.A.F. equipped with Mark VIII radar replaced No. 456 at Middle Wallop, and the Australians moved to Colerne.

Although night flying seemed so unproductive, offensive duties continued, during the summer of 1943, to afford new opportunities. At the end of May Dwyer was injured in an accident near Crediton caused by engine trouble while returning from a day Ranger sortie south of the

⁷ Sqn Ldr C. S. Samson, 406627; 456 Sqn. Clerk; of Fremantle, WA; b. Perth, WA, 18 Jan 1919.

⁸ Sqn Ldr A. G. Oxlade, 400733. 256 Sqn RAF, 456 and 464 Sqn. Clerk; of Box Hill, Vic; b. Echuca, Vic, 8 Apr 1920. Killed in action 5 Jun 1944.

Brest peninsula. Worse followed on 2nd June when Ratcliffe, a fine and utterly fearless pilot, failed to return from a day Ranger flight with which he had persevered although cloud conditions were not in his favour. This was the first crew missing on operations and a distinct loss to the squadron whose offensive spirit he had done much to mould.

Almost immediately afterwards, on 5th June, came instructions that three Mosquitos and maintenance crews were to be detached to Predannack for an indefinite period for long-range fighter sweeps over the Bay of Biscay. These sweeps ("Instep" patrols) had been flown for some months whenever aircraft could be spared by No. 10 Group, and as early as 22nd March Warrant Officer McKenzie⁹ of No. 264 Squadron R.A.F. had shot down a Ju-88. It was now intended to form a composite temporary squadron from detachments of several night-fighter squadrons and to prosecute these patrols with vigour. The tactical difficulties involved were great, for while the Ju-88's could expect to find their prey—the Coastal Command anti-U-boat aircraft, in the main hunting area at any time of the day—the Mosquitos had the far more difficult task of intercepting these same Ju-88's without any prior knowledge of when they might choose to operate. However, it was positive action, and the chosen crews welcomed the opportunity, even though the first patrol on 6th June produced nothing more hostile than the Vichy trawler *Tadorre* which was set on fire off the Gironde. After several blank days a mixed flight from Nos. 456 and 25 (R.A.F.) Squadrons fell in with five Ju-88's on 11th June, and two were claimed damaged by Flying Officer Newell.¹ On 19th June Warrant Officer Gatenby² in company with three Mosquitos of No. 151 Squadron R.A.F. found eight Ju-88's escorting a trawler and himself damaged one enemy aircraft while another was destroyed by his companions. Two days later Gatenby again flew with three aircraft of No. 151 Squadron and all four Mosquitos attacked a surfaced U-boat with cannon fire. The "Instep" patrols produced no further excitement before the detachment was withdrawn from Predannack on 8th July.

Meanwhile, at Middle Wallop, Wing Commander Howden³ assumed command of No. 456; Ranger patrols continued although with little incident. Two successful air-sea rescue searches were flown towards the end of June. On 23rd June Flying Officer Houston⁴ by masterly airmanship was able to drop a dinghy to a Spitfire pilot who was in the sea in a very distressed condition, his own dinghy having burst. July brought a new type of night Ranger operation in which aircraft were sent out in pairs to attack a specific ground target, and then to hunt for locomotives

⁹ F-Lt D. McKenzie, DFC, 402802. 151 and 264 Sqns RAF, 22 Sqn. Advertising cadet; of Gordon, NSW; b. Auckland, NZ, 12 Oct 1919.

¹ F-Lt J. W. Newell, 404543. 256 Sqn RAF, 456 Sqn. Clerk; of Mareeba, Qld; b. Cairns, Qld, 8 Jun 1917. Killed in aircraft accident 5 Mar 1945.

² F-Lt G. F. Gatenby, 403330; 456 Sqn. Pleasure ground proprietor; of Bateman's Bay, NSW; b. Sydney, 20 Jun 1919.

³ W Cdr G. Howden, DFC, 39738 RAF. Comd 456 Sqn 1943, 68 Sqn RAF 1944-45. Regular air force offr; of Perth, WA; b. Guildford, WA, 8 Aug 1914.

⁴ F-Lt G. R. Houston, 415146; 456 Sqn. Petrol depot keeper; of Geraldton, WA; b. Geraldton, 16 Jul 1921.

as opportunity offered during the return flight. On the 12th July the initial venture, against the transformer station at Guerledan, was carefully planned and brilliantly carried out by Panitz and Flight Lieutenant Howard.⁵ They reached the target area at 11.30 p.m. and attacked both the transformer station and the adjacent power house before separating to return independently. Panitz was again favoured, having an opportunity to halt and damage two trains near Guingamp. A fortnight later Panitz and Flying Officer Pratt⁶ made a similar attack on a power station near Marais de St Miche causing large blue electrical flashes followed by an explosion which left the building in flames. Gatenby on 27th July also damaged a transformer at Plancoet and then strafed a train, although on this occasion the accompanying aircraft failed to locate the target. By this time six new Mosquito VI aircraft had been allocated to No. 456 with the specific purpose of forming a third flight to concentrate on Ranger work. These Mosquitos had no night-fighting radar, but were fitted with bombing gear, long-range tanks and Gee navigational equipment. Panitz was chosen to lead and train the six most suitable crews but before any actual bombing sorties could be undertaken an urgent call came for reinforcements for Predannack, and the Ranger Flight was sent. In its absence a few offensive flights were made with Mosquito II aircraft and on 13th August one train was damaged near Caulnes.

The first three aircraft sent to Predannack on 2nd August operated that same afternoon in a composite flight but this and three succeeding sorties made no contact with the enemy. On 7th August Samson led four Mosquitos to an area off La Rochelle where mines had recently been laid, and where German mine-spotting aircraft were expected to be present. No aircraft were sighted but two armed trawlers offered an alternative target and one of these had its superstructure blown away and was left smoking furiously.

Panitz now arranged that No. 456 Ranger Flight should operate as a separate unit, for with six crews available it was able to provide the four required for each normal sortie. The patrol areas varied slightly from day to day but were generally on a line between the Scilly Isles and Cape Estaca in Spain. An open formation of four Mosquitos in line abreast flew just above the wave tops for anything from three to five hours, although it was usual to go up to a few hundred feet in the centre of the Bay to ease the strain on pilots, because the mesmeric effect of skimming the surface required unrelaxing vigilance. The great advantage of flying as low as possible was to avoid discovery by enemy radar and also to give advantage in visual search, a low-flying plane being camouflaged against the sea

⁵ W-Cdr B. Howard, DFC, 404787. 96 Sqn RAF, comd 456 Sqn 1944-45. Petrol representative; of Seven Hills, NSW, and Roma, Qld; b. Seven Hills, 6 Jul 1915. Killed in aircraft accident 29 May 1945.

⁶ F-Lt R. G. Pratt, 266160; 456 Sqn. Grocer; of Undercliffe, NSW; b. Marrickville, NSW, 15 Jan 1918. (Owing to the economic depression of the early 1930's, Pratt was unable to complete his education to the standard subsequently required for aircrew. In 1940 he joined the RAAF and was posted to an EFTS as a steward. His CO granted him leave to attend night classes, enabling Pratt, within 12 mths, to remuster as aircrew. Pratt topped his course and was immediately commissioned.)

while its opponent stood out against the sky. Navigation under these conditions was very difficult and No. 456 was fortunate that it had constantly maintained a policy of training its navigators in wider methods than the technical requirements of controlled night fighting. The detachment accordingly flew "Instep" patrols during the latter half of August but although other aircraft on this duty met with enemy aircraft, all the Australians found was a number of Tunny-boats, repeatedly well outside the prescribed areas. The sails of these fishing vessels were damaged as a warning to keep within proper limits, but this police action was a poor substitute for battle.

At last on 21st September, when Panitz was leading four Mosquitos on an afternoon patrol, eight Ju-88's in line astern were sighted homeward-bound from the area of Coastal Command "Percussion" patrols. Panitz swiftly closed in on the rearmost enemy and opened fire with four cannon and four machine-guns at a range of 200 yards. Many hits were scored, the enemy rear gun was silenced and the starboard engine severely damaged. As the Ju-88 lost height Samson followed in to complete its destruction with another withering attack which sent it crashing on fire into the sea. Newell attacked and damaged a second Ju-88; after it had escaped into cloud he fired at a third with unobserved results. Meanwhile the keen-eyed Gatenby had chased one of the enemy into a fine layer of cloud at 4,000 feet and made four attacks from dead astern. The Ju-88 lost height rapidly and entered thicker cloud with black smoke pouring out from wing-tip to wing-tip.

To increase the chances of success on "Instep" patrols a cruiser carrying radar-control apparatus cooperated from time to time in the most likely areas. Again on 25th September instead of staggered independent patrols, a large-scale sweep of twelve Beaufighters set out during the afternoon to fly parallel tracks covering a wide front. It was No. 307 (Polish) Squadron R.A.F. which encountered and destroyed three of a formation of eight Ju-88's, the Australians hearing the confused noise of combat on their radio-telephones with mixed delight and disappointment. It was inevitable that the comparatively uneventful nature of the Bay patrols should provoke some restlessness among a team specially trained for offensive work, and Panitz continually pressed for permission to undertake Ranger flights from Predannack in addition to the "Instep" duties.

Panitz selected the German seaplane base at Lake Biscarrosse as a suitable target and on 3rd October made a late-afternoon attack with three other Mosquitos. They were met by intense light-calibre gun fire but unfortunately no enemy aircraft were on the lake, though a refuelling launch was left sinking, a tender was damaged and an anti-aircraft barge and the slipway were attacked before the Mosquitos withdrew, only to find an armed trawler three miles south of Biscarrosse. Panitz led an immediate attack and the trawler was set on fire. As he broke away the leader discerned in the gloom a Ju-88 bomber, and closing to seventy-five yards' range shot it down into the sea. Three of the Mosquitos now began to

suffer from intermittent engine failure, but all returned safely to Predanack. This satisfactory trip proved to be a "last fling" because the Mosquitos were grounded until the cause of recurrent engine trouble had been determined. By the time it had been traced to spray and salt air entering the engines during low-level flights, the Ranger detachment was ordered on 6th October to rejoin the parent body of No. 456 at Colerne.

CHAPTER 20

NATIONAL ASPIRATIONS

IT is possible that Australian airmen will never in any future emergency be employed overseas as they were between 1941 and 1945, but that either a completely national or a completely international framework will be evolved for their contribution. National forces have been the consistent and fervid intention of British Dominions during the first half of the twentieth century, but air forces, perhaps most of all, lend themselves to and derive most benefit from complete integration of individuals of several nations. From the viewpoint of military effectiveness, national air forces are somewhat circumscribed by the aircraft, equipment and training available to a particular government, but do permit concentration on specific tasks. On the other hand, a fully international air force would permit the constant flow of men to operations of the greatest importance at any time. Again, from an administrative viewpoint, a compact national air force can easily be conducted according to its own regulations without causing repercussions among other forces working alongside it; but an international air force working on one common set of conditions should be able to enjoy the utmost economy in manpower.¹ Australian overseas contribution in the war of 1939-45 appears to have fallen between these two aims.

Australian sentiment was from the outset strongly in favour of a national air force. Mr Menzies² in the House of Representatives on 15th November 1939 said in concluding a speech on war developments:

I would just like to add one observation on this question of the Empire Air Scheme. It is this: The Government correctly interpreting, as it believes, the wishes of the Australian people, will as far as possible preserve the Australian character and identity of any air force which goes abroad. It is true that in the early stages we could not hope to provide anything more than a trifling fraction of the number of senior officers who will be required But as time goes on this position will correct itself.

In the meantime, all I need say is that the tradition established by the Australian Forces in the last war as Australian Forces is fully valued by us, and that the same objective will be aimed at in the case of the air forces to which I have referred.

Certainly a "truly national force" was a consistently prominent feature of the successful recruiting campaign for airmen, and all Australian political parties, whether in office or in opposition, felt themselves pledged to this objective. The early energetic intention of the Australian Air Board has already been described, with the practical difficulties which arose during 1941, and a partial reversion at the end of that year to the early plans by

¹ A British Commonwealth air force comes most readily to mind, but an English-speaking air force or a completely international air force would not be impossible.

² Rt Hon R. G. Menzies, CH. Prime Minister of Aust, 1939-41, and since 1949; Min for Def Co-ord 1939-41; Memb Advisory War Council 1941-44. Barrister-at-law; of Melbourne and Ballarat, Vic; b. Jeparit, Vic, 20 Dec 1894.

the institution of an Overseas Headquarters in London and the emergence of a fairly distinct "Australian Section" within No. 3 Personnel Reception Centre at Bournemouth. At this stage it did appear that, however tardily, the desired pattern of Australian overseas air contribution would be achieved. Events and the very nature of the air war were constantly working against this ideal and despite very conscientious efforts in many quarters it was never realised. It was not merely that the advent of war to the Pacific altered the general strategy of the war and materially affected Australian contribution, but constant changes in the needs of air warfare itself interfered progressively with any easy solution.

The interaction of these tendencies affected Australia more than other Dominions and her air effort overseas remained relatively the least concentrated of all. South Africa, which had conducted its own training, and which to all intents and purposes limited its contribution to fighter and light-bomber units, suffered none of the centrifugal tendencies of the Empire Air Training Scheme. Canada, whose aspirations and problems were basically the same as Australia's, achieved a considerable part of her aim but was favoured by her geographical position; by almost complete concentration of effort on the European war; a relatively high industrial capacity; an economic strength which enabled her to accept a large part of the financial burden of her air effort; a much larger and more balanced contribution of air personnel; a greater participation by her senior air force officers in both the military and administrative fields; and a prompt, sustained and pertinacious attack by an adequate group of liaison officers in the various commands against any tendency which threatened to defeat the aim. In every one of these aspects Australia either naturally or by intent was in an inferior position to Canada, so that, although it will be seen that every concession of principle to Canada was also accorded to Australia, the latter was rarely in a position to take equally strong action.

The delays in concluding negotiations, already apparent in 1941, continued, if they were not increased, in subsequent years when Australia was preoccupied with affairs in the Pacific. It is against this background that the disparity of aim and achievement—the constant reiterations of policy in solemnly executed covenants and the halting and partial realisation in practice—must be studied.

The Overseas Headquarters set up in London in December 1941 had originally, as will be recalled, somewhat limited objectives. Its staff of 24 officers and 41 airmen came partly from Australia, partly from the existing liaison office staff and partly from No. 10 Squadron. Many difficulties arose in the early stages of organisation of this headquarters which barely preceded the entry of Japan into the war. There was an absence of clearly-defined policies or practical methods of putting them into effect. There was a general lack of internal organisation with satisfactory office systems and procedures; and a records system hitherto non-existent had first to be established on a satisfactory basis to assist in the internal organisation. It was quickly evident that existing staffs were inadequate even for the

initial limited aims, and many additions and changes were required. Thus in the early months while the headquarters was mainly trying to assess the nature and extent of the problem of fostering Australian airmen's interests, for which it had been called into being, and while it was also attempting to create an adequate internal organisation, it also had to face greatly-increased duties concerning requirements for the Pacific area. The Australian Government urgently demanded information about suitable combat and training aircraft and replacements, and about the latest developments in wireless, radar, armament and other technical equipment. On the other hand the Air Ministry became increasingly interested in affairs in the South-West Pacific and many enquiries were initiated in London through Overseas Headquarters regarding all aspects of the Japanese Air Force.

Basically the internal organisation of the Overseas Headquarters followed the normal pattern of an air staff and an administrative staff, the senior officer of each being directly responsible to the air officer commanding. The air staff dealt with all operational and technical subjects, with three officers constantly studying the aircraft and equipment and tactics of Fighter, Bomber and Coastal Commands while others surveyed the latest developments within the fields of armament, Intelligence, navigation, photography and radio services. All these posts were advisory and not executive and the aim was to give a complete and accurate picture of trends which might be of particular importance to Australia or had relevance to operations in the Pacific. The organisation of the administrative staff was more complex and covered a far wider spread of activities, ranging from purely administrative sections such as the Organisation and Staff Duties Branch or the personnel and casualty staffs, through accountancy, medical and legal sections which necessarily accompany any large establishment to sections complete in themselves such as public relations or (later) education and rehabilitation.

The Organisation and Staff Duties Branch was responsible for all matters affecting the deployment and grouping of Australian airmen in the European and Mediterranean theatres and maintained a close liaison with the Air Ministry. It also acted as a general secretariat for the headquarters, supervised the civilian staff, maintained a central registry³ and technical library, and was also responsible for staff accommodation, furniture and other office requirements. The personnel section was at first small but had the very wide task of overseeing all matters concerning the posting, promotion and commissioning of both aircrew and ground staff and all matters which affected their welfare. Casualty section had the more precise task of evolving a comprehensive procedure for the speedy dispatch to Australia of the first casualty information received from the Air Ministry sources; of supplementing this initial advice from a thorough investigation into each incident; of identifying or classifying the relatively large proportion of aircrew listed simply as "missing"; of communicating with and

³ By 1943 the volume of official correspondence had risen to approximately 7,500 outward and 4,500 inward letters each month.

caring for prisoners of war either by direct contact or through the International Red Cross at Geneva; of assuming responsibility for the effects of missing personnel and of finalising the estates of deceased members.

The organisation, personnel and casualty sections were naturally the ones most affected by a wide dispersal of Australian airmen and all were considerably hampered during their early months by the need to grope back into the past while still coping with increasing current problems. Only the casualty section was really successful, and the general records intended to show the full details of each man's service remained somewhat sketchy and unsatisfactory in respect of those who went overseas, especially to the Middle East, before the formation of Overseas Headquarters. Attempts to repair these inadequacies continued throughout the war while a far superior system of card and file records was maintained for all men arriving in the United Kingdom after December 1941. Many of the details required for these records were abstracted from a vast flow of R.A.F. personnel occurrence reports, with constant possibility of errors and omissions not only in the original document but in the process of extraction. This was particularly so in respect to men in the Middle East. Some of these were not firmly identified at the beginning and delays or loss of documents and the relatively rapid circulation of men among units caused many difficulties. The accounts section had the same problem and in addition to the primary difficulty owing to varying Australian and British rates of pay and allowances it was forced throughout the war to make continual adjustments to nearly every member's account in the light of tardily received information concerning reclassification, promotion, commissioning or movement of individuals.

Again the difficulty of keeping constantly in touch with men widely dispersed in the Middle East caused the greatest anomalies and there were several instances when sergeants, temporarily in England on duty, called at Overseas Headquarters to draw pay only to find that not only had they been gazetted for commissions, but in some cases had been promoted to flying officer without any notification (which had naturally been sent to their last known location) having succeeded in catching up with their subsequent movements. It was against this disability, that aircrew travelled far more quickly than official documents, that Overseas Headquarters constantly struggled, and finally achieved a very high degree of success. In the early months when much policy was as yet undefined, when staffs were small and inexperienced, when there was no effective liaison in the field, and when individual airmen were only dimly aware of, or even sometimes apathetic toward the headquarters, many problems were insoluble. A tendency grew up for individual aircrew who had a very keen sense of their own real or supposed grievances to disparage the headquarters if an immediate and personally satisfactory solution was not produced. This reinforced the traditional difference in outlook between the fighting man and the desk man who supported him, but where it existed it was mostly wrongly based. The officers and men of headquarters would have required exceptional powers to satisfy everyone because usually several authorities



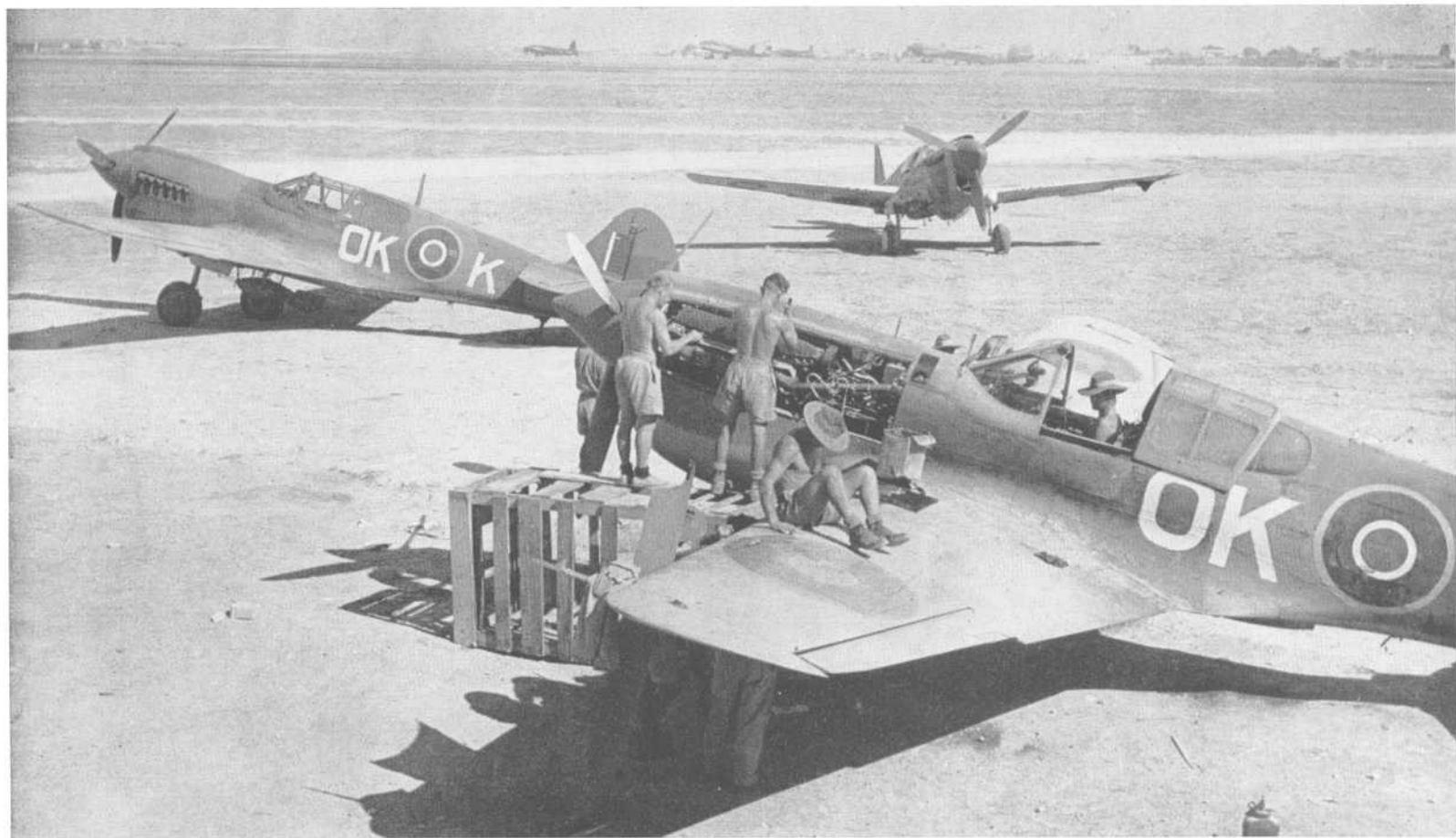
(Air Ministry)

Inspecting a 20-mm cannon in a Spitfire of No. 452 Squadron during the winter of 1941-42. Left to right: Air Marshal R. Williams, air officer commanding R.A.A.F. Overseas Headquarters; Air Cmdre F. H. McNamara, V.C., deputy air officer commanding R.A.A.F. Overseas Headquarters; Major P. E. Coleman, assistant secretary of the Australian Department of Air; Rt Hon Sir Earle Page, Australian representative in the British War Cabinet; F-Lt K. W. Truscott.



(Air Ministry)

In London on 31st March 1943, British, Canadian, Australian and New Zealand representatives signed an agreement for an extension of the Empire Air Training Scheme. Left to right: Air Vice-Marshal H. N. Wrigley (air officer commanding R.A.A.F. Overseas Headquarters), Rt Hon V. Massey (Canadian High Commissioner), Rt Hon S. M. Bruce (Australian High Commissioner), Rt Hon Sir Archibald Sinclair (Secretary of State for Air), Mr. W. J. Jordan (New Zealand High Commissioner).



(R.A.A.F.)

Malta 1943. Ground crews of No. 450 Squadron prepare Kittyhawk fighter-bombers for operations supporting the invasion of Sicily. In the background are Wellington, Halifax, Dakota and Liberator aircraft.

were involved in solving other than routine matters for which a firm policy existed. Headquarters' staffs even more than ground crews lack the glamour and sense of personal contribution of aircrews but it should not be forgotten that in terms of long hours of work, inferior leave entitlement and unselfish application to mainly thankless and dull routine tasks, they gave very meritorious if supplementary service. The measure of their worth is not so much what they failed to do at any one time but their success in arresting the original muddle, evolving satisfactory procedures even if sometimes by rule of thumb, and in progressively ameliorating the conditions of dispersed personnel and reducing delays to a minimum.

Some important sections of the administrative staff were less affected by the problem of wide dispersal of the oversea effort and were more concerned like the air staff with the needs of the Pacific theatre of war. Thus the engineering and equipment sections grew out of activities which had for a very long time formed part of the functions of the old Liaison Office. The engineering section acted mainly as a link between the R.A.F. and R.A.A.F. on all engineering and technical matters but the equipment section had a wider scope. It was responsible for ensuring that all aircraft, airframes, engines and spares, explosives, photographic, meteorological and all general equipment required in Australia and which could be obtained, were shipped expeditiously. It was responsible for sea and air movements, both of freight and personnel; it conducted normal liaison with the R.A.F. on all equipment matters. In one important aspect—the supply of clothing and gear to Australian members overseas—it did have to face the problem of dispersal. Under the Empire Air Training Agreement it was provided that Australian trainees should be fully equipped before embarkation from Australia and that subsequent issues and maintenance of uniform and clothing for officers would be the liability of the Australian Government, for airmen the liability of the British Government. The direct responsibility for officers was adequately met by a central store in London⁴ (with a later annexe at No. 3 Personnel Reception Centre) but as the distribution of airmen's clothing was carried out through normal R.A.F. procedure it became necessary to promulgate comprehensive instructions in Air Ministry Orders to ensure that Australians were able to secure supplies of garments of their own pattern. Full details and specifications and sealed samples were prepared for the Air Ministry, but a large amount of research was required before a fabric and dye suitable to Australian needs was found. No. 214 Maintenance Unit at Newport held a special section for Australian airmen's clothing and from this depot, each unit demanded its own needs. It frequently happened that with rapidly-shifting populations some units became overstocked because supplies arrived after Aus-

⁴ The purpose was initially seen as equipping men commissioned in the UK. However, because of the generally low standard of officers' uniforms issued in Australia many adjustments had to be made at this store. The earliest men commissioned in Canada had been given a cash grant and made their own arrangements for uniform; later a controlled scheme operated in Canada but in each case men found the London store invaluable. It was found necessary to maintain a full range of issues for replacement purposes, and contracts were made direct with manufacturers.

tralians left while many airmen at other units could not receive their needs. Constant liaison and experience eliminated most of these difficulties but with every change of scale of issue and with each new major item newly introduced (such as war service dress) there were inevitable delays in approving, manufacturing and distributing an Australian pattern equivalent.

One of the earliest sections of the Overseas Headquarters has particular relevance to this present record. Among the original injunctions contained in the directive to Air Marshal Williams and restated in Organisation Memorandum No. 1 was the duty of "the compilation and maintenance of historical records". One officer and two airmen (with some civilian clerical assistance) were initially made available for this task but before they had really commenced duty it was clear that publicity and not record-keeping was assumed as the main task. On 2nd December 1941 a minute subsequently approved suggested that the title "Public Relations", rather than "Historical Records" be adopted because "in a wide sense 'Public Relations' can be interpreted to embrace that phase". It was perhaps natural in the absence of separate provision for publicity that this section should be misemployed because, of all the services, the air forces were at this time receiving proportionately the largest and an ever-increasing share in publicity. Air Marshal Williams was informed that the Air Ministry Directorate of Public Relations had a staff of 100 officers and 130 civilians, and that the Royal Canadian Air Force had a particularly strong team of editors, feature writers, photographers and a film unit in London. On the other hand the demand from air force and press authorities in Australia for up-to-date news of Australian activities was strong and carried to a very high plane. The Australian Minister for Air had already, on 5th August 1941, pledged that the new headquarters would "increase the flow of news from the United Kingdom so that the general public was fully acquainted with the activities of the R.A.A.F. abroad". In December 1941 the Australian Prime Minister, Mr Curtin, made representations through the High Commissioner to the Air Council requesting more news of outstanding operational successes. In March 1942 the Air Board expressed "grave concern" and in July "dissatisfaction" with the volume of material dispatched from London on which ministerial statements and announcements could be made. In the face of this and other criticism the small staff was almost continuously employed in work of immediate but ephemeral importance. Requests for increased staff could be satisfied only slowly and it was not until 1943 that an officer was available for historical records duties.

While the Overseas Headquarters was thus in early 1942 cautiously determining its main problems and making provision to solve them, considerable progress was being made within the Australian section of the Bournemouth reception centre. Wing Commander White had not only succeeded in getting better and more convenient quarters for his airmen but he also continued to press for improvements in reception, training and postings procedures. Not all his efforts were successful but it was very

generally felt among the aircrew themselves that everything within reason was being done for them, while on the other hand the Australians stood out as a very distinct, very united and purposeful section. It was typical that when fears were expressed that Bournemouth with its high aircrew population was a tempting target for enemy bombers, the Australians welcomed the inception of local-defence duties and took over responsibility for No. 4 Defence Area of the town. Internal combat and A.R.P. training was beneficial and reflected in the behaviour of the Australian element during the few air raids suffered.⁵

Both Wing Commander White and Air Vice-Marshal McNamara (who was acting air officer commanding while Air Marshal Williams was attending conferences in Australia) at this time were vitally interested in proposals to recast the aircrew holding centres because it was clear that facilities at Bournemouth were insufficient for the total of 7,500 aircrew of all nationalities expected to be awaiting employment by May 1942.⁶ The Air Ministry proposed on 28th March 1942 that while Bournemouth should expand to a capacity of 5,000, all Australians and New Zealanders should transfer to Harrogate in Yorkshire with a proposed population of 2,500. Harrogate, however, was too far from London, climatically inferior and unlikely to give comparable accommodation to that secured at Bournemouth. An alternative Flying Training Command proposal on 23rd April to house all officers at Harrogate and all other ranks at Bournemouth was also rejected partly on the general principle of dispersal but also because McNamara felt that "officers should be made to stand on their own feet". After an exchange of strong but friendly correspondence a conference on 2nd June agreed that both the Canadians and Australians should have a separate reception centre. Some alternate sites were inspected but it was finally decided that both should remain at Bournemouth with a common R.A.F. headquarters "to allot common facilities and to keep the peace between the maple leaves and the wattles".

The Australian holding unit began its separate existence as an unnumbered personnel reception centre on 1st October 1942. It was to be functionally controlled by Overseas Headquarters,⁷ but for general and domestic administration was to remain within No. 54 Group of Flying Training Command and conform with normal British training requirements. Both Canadians and Australians had been pressing for some time for greater control over the distribution of their airmen and to cover this

⁵ Aircrew and airmen generally carry no hand weapons except on operations and thus tend to feel extremely vulnerable in air raids or during close contact with the threat of invasion. See D. Gillison, *Royal Australian Air Force 1939-42* (in this series), for an account of the behaviour of airmen during and after raids on the airfields at Kota Bharu (Malaya) and Darwin.

⁶ Compare the figure with that of 750 which only one year previously (1941) had been the assessed maximum population of No. 3 P.R.C. It is only in the light of this ten-fold increase in requirements that the magnitude of many other problems of administering the EATS can be properly viewed.

⁷ In Jun the Air Board had approved an establishment for the PRC as part of OHQ RAAF. This establishment was to be manned under the Apr 1941 Memorandum of Agreement by which Australian EATS units should be manned by Australians within Australia's ability to do so. The needs of the unit constantly outstripped either the formal establishment or the supply of Australian staff so that for a long time the unit had a very large proportion of British officers and other ranks.

provision was made for a "postings panel" at Bournemouth instead of from remote headquarters. Thus the object of the Australian holding unit was officially recognised to be "for the reception of R.A.A.F. personnel arriving in this country ex-E.A.T.S. and for the selection of R.A.A.F. personnel for posting from the centre to training and other units". Expansion took place mainly in the unit headquarters but otherwise actual functioning remained much as before. Separate equipment and pay sections were set up and the unit could now officially correspond directly with Flying Training Command and the Air Ministry. With effect from 28th December 1942 this unit became No. 11 Personnel Dispatch and Reception Centre and was to be used for the repatriation as well as the initial reception of all Australian airmen.

The emergence of national holding units owed much to an important conference held in May 1942 at Ottawa to recast the Empire Air Training Scheme and to ensure its continuance beyond the original terminal date in March 1943. Not only the four original parties but also ten other nations interested in aircrew training sent delegates.⁸ Originally it was intended that the Australian Minister for External Affairs, Dr Evatt,⁹ who was in London at the time, should attend this conference together with Wing Commander White who had the unique experience of having commanded an initial training school in Australia and then having met at Bournemouth all the difficulties of reception and posting in the United Kingdom. However, it was decided that the existing Australian representatives in north America, Major-General Glasgow (the Australian High Commissioner to Canada), Air Vice-Marshal Goble, Mr C. V. Kellway (deputy director-general of war supplies procurement) and Mr G. S. Bridgland would suffice, and that neither Evatt nor White would attend.

The conference duly convened on 18th May and the following day split into business sub-committees to discuss matters of interest to all delegates. Information was exchanged on methods of training and wide agreement was reached on general principles covering the training of instructors; the relationship between visual, night and instrument flying, and the importance of precision flying; relationship between ground and air training; entrance standards to operational training units; and the selection of aircrew. The composition of crews for various types of aircraft; the desirability of a standing advisory committee for standardisation of training methods and measures; the coordination of manpower resources; personnel problems; and the special needs of *émigré* governments such as Poland, Norway and Czechoslovakia in finding adequate reinforcements for their national squadrons were all similarly discussed and findings submitted to a final plenary committee on 22nd May. All delegations except

⁸ The nationalities and number of prime delegates were:

Canada 16	United States .. 18	Greece 1	Czechoslovakia .. 2
U.K. 26	South Africa .. 1	Norway 6	Yugoslavia .. 1
Australia .. 4	Belgium 2	Netherlands .. 3	
New Zealand .. 4	China 3	Poland 4	

⁹ Rt Hon H. V. Evatt, MLA NSW 1925-30; Justice of High Ct of Aust 1930-40; MHR since 1940; Att-Gen and Min for Ext Affairs 1941-49; b. East Maitland, NSW, 30 Apr 1894.

the British, Canadian, Australian and New Zealand parties then disbanded and two series of discussions ensued; one between all members of the original Empire Air Training Scheme and one on matters affecting Canada and the United Kingdom only.

Great Britain had already, from mid-1940, installed several training schools in Canada as "lodger units", but by early 1942 she wished to transfer as much as possible of all basic training and some advanced training units away from her own airfields, partly to permit concentration of effort on refresher and operational training and partly to provide facilities for an increasing number of British and American operational squadrons. The number and categories of schools in Canada under this new conception to be known as the British Commonwealth Air Training Plan would ultimately be:

Initial Training Schools	7
Elementary Flying Training Schools	16 (of which 12 would be double schools)
Service Flying Training Schools	20
Air Observer and Air Navigation Schools	10 (of which 9 would be double schools)
Bombing and Gunnery Schools	10
General Reconnaissance School	1
Wireless Schools	4
Operational Training Units	4
Flying Instructors Schools	3
Central Flying School	1
Link Trainer School	1

The Canadian delegation was intent on gaining more control of schools within its territory and readily agreed to the British proposals subject to agreement that the transferred R.A.F. schools, while retaining their identity, should be administered by the R.C.A.F. It was also agreed that the R.C.A.F. should retain in Canada whatever proportion of aircrew output which it thought necessary to build up and maintain its own squadrons, and a similar concession for Australia and New Zealand was included in the new agreement.

It was mutually agreed that a new agreement should be drafted extending the joint training plan from 1st July 1942 until 31st March 1945 "unless by agreement between the Governments concerned it be extended or terminated at an earlier date". Australia and New Zealand both promised to do everything possible to send quotas of aircrew for training in Canada, but, if for any reason these should fail to arrive in time, their places would be taken by British pupils. A general review of training sequences was made in the light of the previous week's discussions and it was decided that the British practice of combining observer, navigator and air bomber training in one school would be adopted in Canada. The most notable change was an extension of wireless school courses from twenty-four to twenty-eight weeks, partly to improve the technical skill of wireless-operator air gunners, but also to diminish the flow of this category which had lost

some of its earlier importance, and to cater for an increased number of straight air gunners at bombing and gunnery schools.¹

Training capacity and flow was thus easily settled and discussion centred on the financial contribution to be made by the participants. Under the original terms Australia had agreed to pay 11.28 per cent of the Dominions' share of the Canadian scheme, but in practice it had been found very difficult to cost the expenditure for apportionment because of frequent changes. Australia was anxious to replace this general liability by a capitation charge which would safeguard her interests should she be unable to fulfil her monthly quota of pupils; she was also keen to avoid incurring any new financial commitments. Great Britain, having borne a heavy liability under the original scheme, wished to shift some of this load by means of paying for a large part of the costs by contribution in kind of Lend-Lease material. Canada on the other hand was willing to accept a greater proportion of expenses under the new plan but was intent on gaining greater control not only of the training organisation but also of her own airmen serving with the Royal Air Force. In early discussions it was suggested that Great Britain should pay half the total cost and the Dominions the other half, but finally it was agreed that Canada and Great Britain should each pay half, and that Australian and New Zealand contributions on a per capita basis to be fixed later by negotiations in London, would be deducted from Great Britain's share.

The conference spent much time on personnel and organisation matters affecting the future of aircrew trained under the revised scheme. After very full discussion it was decided that all pilots and navigators considered suitable according to the standards of their own countries and recommended at any stage of their career should be commissioned: the existing percentage basis would remain for air gunner categories but no suitable airman would be excluded solely on account of the quota. Very definite provisions for Canadian aircrew were expressly written in an appendix to the four-power agreement signed on 5th June. Normally recommendations were to be made monthly by commanding officers, but any airman was entitled to apply for recommendation, and if this application should be endorsed it was to be treated equally with those actually initiated by a commanding officer. All such individual applications whether endorsed or not were to be forwarded to the Canadian headquarters in London. Again Canadian liaison officers in R.A.F. Commands were empowered to make representations to commanding officers regarding any individual

¹ The proposed basic courses in Canada would be:

Pilot		Air Navigator		Air Bomber		Air Observer		WOAG		AG
ITW	8 weeks	ITW	8 weeks	ITW	8 weeks	ITW	8 weeks	ITW	8 weeks	ITW 8 weeks
EFTS	8	EANS	4	B&GS	8	EANS	4	Radio-S	28	B&GS 4
SFTS	16	ANS	16	ANS	6	ANS	18	B&GS	4	
						B&GS	6			
	32		28		22		36		40	12

case, especially to guard the interests of those airmen who by frequently moving from unit to unit tended to be overlooked by successive commanders. Commissions were to be effective from the date of recommendation even should the airman in the meantime have become a casualty. British and Canadian authorities were to jointly review the case of every Canadian aircrew member who had served for two months in an operational unit. As a necessary corollary to this more liberal commissioning policy the Conference deemed it vital that at all stages of training more attention should be paid to evoking and sustaining a strong sense of the status and responsibilities of officers. Another appendix dealt comprehensively with the control and administration of Canadian aircrew by which greater supervisory powers were defined for the Canadian Overseas Headquarters; personnel reception and disposal centres were to be set up and a greater measure of control accorded in the posting of Canadians to training units. The Canadian quota of squadrons formed at the expense of Great Britain was to be raised from twenty-five to thirty-five and were to be predominantly bomber units. A Canadian bomber group was to be formed as soon as possible and a standing committee set up immediately to keep the project under constant review. In other R.A.F. commands, where such an intensity of effort was not possible, existing squadrons were to serve on airfields which were to be designated R.C.A.F. stations commanded by Canadian officers if available.

The conference also discussed the question of setting a time limit for tours of duty overseas for both ground and air crews. This repatriation policy was formally recorded in an appendix and stated that ground crews should normally be eligible for return to Canada after two years' service, subject to operational exigencies, and at the option of the individual. For aircrews it was intended as soon as possible to ensure that no individual should do two operational tours² while there were sufficient available trained men who had not undertaken operational duties. It was specifically stated that, for some time, individuals might be called on for two operational and two non-operational tours before repatriation.³ At any time repatriation of Canadians would be authorised for compassionate or health reasons.

The Ottawa conference resulted in two agreements—one signed on 1st June between Canada, Australia and New Zealand with the concurrence of Great Britain; and a full four-party document on 5th June. The first was merely to adjust the financial contribution under the old and new plans⁴ and the second was the general and full agreement. No specific

² According to the "Datum Line" Policy adopted in Nov 1941 tours consisted of a maximum of:

(a) All Commands (other than Coastal)	200	hours	operational	flying
(b) Coastal Command Flying-boats	800	"	"	"
Landplane GR	500	"	"	"
Attack squadrons	300	"	"	"

There were frequent amendments to meet operational requirements.

³ Although not specifically stated in the appendix a tentative monthly quota of repatriated aircrew to feed the Canadian home-based sqns and training units was agreed as 238 pilots, 40 observers and 30 air gunners.

⁴ The basis arrived at was that Australia should pay \$27,879,181 as the full cost of all her pupils entered into Canadian schools before 17 Mar 1942. For each pupil accepted in Canadian schools after that date under the terms of the original agreement Australia was to pay \$8,904 per

agreement was sought or reached for the continuation of that part of the training scheme wholly conducted in Australia. This was to be negotiated later in London, but the British Government promised at Ottawa that during these negotiations it would also adjust if necessary Australian costs under the Canadian agreement signed on 1st June. The position thus was that Canada had achieved a complete measure of agreement both concerning her responsibilities and her rights; Australia had reached a partial agreement only. The remaining two-party agreements between Australia and Great Britain both in respect of training in Australia and of charges payable for Australian pupils in Canada were not signed until 31st March 1943, the very date on which the old agreements expired. Thus while Canada's position was clear from mid-1942, some doubts existed at various levels during the next nine months concerning Australian contribution, responsibilities and rights. The arrangements for national grouping of Dominion aircrew made at Ottawa referred specifically to Canadians, although a promise was made and subsequently recorded in the minutes that if the Australian and New Zealand Governments desired and took the matter up in London they would obtain as far as practicable the same concessions. However, although this was agreed in principle at high level, it was also apparent that Canada had earned her large measure of control by her increased contribution and her ability effectively to implement and police the arrangements.

It is clear that financial aspects predominated in the Australian approach to the Ottawa conference. For purposes of comparison with the costs of aircrew trained under the Joint Commonwealth Air Training Plan it is interesting to note that in May 1942 a tentative basis of agreement was reached for Australian squadrons which served overseas and remained the financial responsibility of the Commonwealth Government. The United Kingdom claim in respect of No. 10 Squadron was finally agreed to be at the rate of £430,000 sterling per year. The claim for No. 3 Squadron was complicated by the variety of aircraft which it had received from British sources and was originally rendered at £1,060,000. However, on the basis that it was an average fighter squadron, the annual maintenance claim was accepted as £500,000. A lump sum payment of £400,000 was estimated to cover the total cost of Nos. 1, 8 and 21 Squadrons during the whole period of the operations in Malaya and the suggested payment in regard to No. 1 Air Ambulance Unit was £12,000 a year while two aircraft were operating and £5,000 a year when only one was in use.

Meanwhile, early in 1942, Air Marshal Williams had reported personally to the Air Board concerning the problems of administration which had arisen in the United Kingdom and in the Middle East. Australia herself was urgently making provisions for air defence in the South-West Pacific and on 3rd March the War Cabinet approved the expansion of the permanent Home Defence force to an eventual size of seventy-three squadrons. There was no longer any likelihood that the surplus ground

pilot, \$11,400 per observer, \$4,469 for each wireless-operator air gunner and \$2,897 for each air gunner.

crew held in Australia during late 1941 awaiting the formation of *Article XV* squadrons would be permitted to go overseas. No drafts for these units had been sent since the entry of Japan into the war except to No. 453 in Malaya, but the War Cabinet had not placed an unconditional embargo on sending drafts but had deferred them until home defence requirements had been met and safe convoy arrangements made. Local requirements now seemed so large and so urgent that it was unlikely that there would be any surplus. However, staff appreciations made at Air Force Headquarters in Melbourne suggested that Australia could reasonably expect to complete the manning of seven *Article XV* squadrons. This figure was chosen because nucleus ground staffs had already been supplied. The number of men actually serving overseas with the Royal Air Force early in 1942 exceeded by 44 the total number required for seven squadrons but there were serious deficiencies in some trades (including 123 ground wireless operators) balanced by an abnormal surplus of fitters. No official action was taken to implement the modified scheme during the first half of 1942.

The sailing from Australia of aircrew drafts had also been suspended for four months early in 1942 pending survey of local requirements, but it soon became apparent that home units could not absorb the output of training schools and the flow of aircrew began once more, and especially large drafts were made to compensate in some measure for the interruption. The problem of ground staff, however, persisted, and on 11th August 1942 the Air Board decided to put the following proposals before the War Cabinet:

- (1) The R.A.A.F. would complete and keep up to strength the ground staffs for seven *Article XV* squadrons.
- (2) This number to be maintained irrespective of where they served.
- (3) Air Ministry would be asked to form the agreed number of 18 *Article XV* squadrons with R.A.A.F. aircrew.
- (4) No action would be taken to recall any surplus fitter or other ground staff • mustering then overseas.
- (5) The question of backing more than seven *Article XV* squadrons should be reviewed in March 1943 or earlier if the local tactical situation permitted.
- (6) The Supplementary E.A.T.S. Agreement relating to *Article XV* squadrons should be revised to meet the new conditions.

As Nos. 452 and 457 Squadrons were already on their way back to Australia, the above proposals in effect meant that five and not seven squadrons overseas would be given all-Australian ground staffs. The Minister for Air referred the proposal back and requested full details of the precise disposition and employment of the men already overseas. Numerous signals passed between Melbourne, London and Cairo before a satisfactory picture was developed (the disposition of dispersed ground staff changed from week to week especially in the Middle East) and it was not until 11th January 1943 that the Minister was able to submit the proposals to the Australian War Cabinet. There were then 14 *Article XV* squadrons in Europe and the Middle East and 2 in Australia.

It is clear that throughout 1942 while Australia found it impossible to fulfil one major provision of the Supplementary Agreement of April 1941 by providing ground staff, increasing emphasis was placed on gaining the provisions favourable to Australia in that Memorandum and the 1942 Ottawa Agreement. The Air Board prepared a new comprehensive direction to guide the Overseas Headquarters in matters of administration affecting Australian airmen. It was dated 15th October and addressed to the acting air officer commanding (McNamara) but much of it had obviously been prepared in June.⁵ It actually arrived on 30th December, long after Williams himself was back in London. Much of what was newly authorised by this document had already come to pass before it was received; a delay of six months between proposal, approval, dispatch from Melbourne and receipt in London was quite inordinate for any solution of a problem so complex as that presented by the dispersal of Australians. However, this directive was important on several counts. It began with a re-affirmation of Australian intention to achieve concentration of men both in *Article XV* and other units and a denunciation of the position actually reported by Williams of wide dispersal.⁶ To overcome this situation: you are therefore directed to represent these facts to the Air Ministry and to take all necessary steps towards implementing the Agreement and the understanding derived from discussions in connection with it,⁷ on the following principles:

(a) *Aircrew*

- (1) Aircrew establishments in R.A.A.F. Squadrons shall be filled by R.A.A.F. personnel.
- (2) Aircrew personnel shall, so far as possible, be employed in their respective categories as members of composite Australian crews.
- (3) Aircrew personnel not absorbed into R.A.A.F. squadrons shall be grouped together in R.A.F. squadrons—preferably by the selection of particular squadrons to which R.A.A.F. personnel are posted. If such squadrons can be within a particular group of the R.A.F. (according to their nature) administration would be simplified.

(b) *Ground Staff*

- (1) Ground staff supplied to the establishment of particular R.A.A.F. squadrons are to be employed in those squadrons.
- (2) Personnel supplied for training prior to the establishment of new squadrons to be posted for such training in parties, and if possible to squadrons with similar equipment to the new squadrons, and to be absorbed into R.A.A.F. squadrons on formation.

The new directive also reviewed the anomalies which had arisen from the segregation and differing terms of service of permanent and E.A.T.S. personnel serving overseas. In future all members of the Royal Australian Air Force were to be administered under a common system, the restrictions

⁵ One paragraph refers to "the Conference at Ottawa this month"; another to revised establishments which were made in June.

⁶ Examples given were (a) aircrew serving on 80 operational units, 70 of which had fewer than 6 Australians; (b) 200 of the surplus fitters split among 62 RAF units in the UK; (c) fitters in the Middle East acting as motor transport drivers.

⁷ In the preamble the Air Board bases its claim rather on the statement made by Mr Fairbairn on his return from Ottawa in 1939, and on Australian desires rather than on any ratified agreement consequent on the generally agreed principle that as far as possible national homogeneity would be achieved.

on postings or transfer between the different units were abolished, and no special drafts were to be sent from Australia to man Nos. 3 and 10 Squadrons which would draw their reinforcements both of aircrew and ground staff from the common pool. It was also thought desirable that, as soon as possible, all Australians should revert to their own paybook system, and that either there should be no limitation on drawing full Australian rates, or, if such restrictions were insisted on by the Air Ministry, that the permanent squadrons should also conform.⁸ The difficulties which had arisen concerning promotions and commissioning of airmen were also set out and in general Overseas Headquarters was to seek the same arrangements granted to Canada at Ottawa.⁹ It was emphasised that Australia

⁸ The Ottawa Agreement of 1942 had maintained the principle that Dominion aircrew should only draw pay at British rates, the difference being credited to them after the war.

The changes in system of pay and the accounts kept under existing arrangements had proved very unsatisfactory and Australia had found it virtually impossible either to submit claims in connection with United Kingdom liabilities, or to finalise deceased estates. Continuation pay books and the maintenance at OHQ of a record of each individual's pay throughout his entire service with the RAF were required to repair this situation. It was also thought that more dissatisfaction had been caused by having members of one service on differing pay systems than would accrue from a basic difference between all Australians and British airmen. Again as Australians were farthest from home and had no set tour of oversea service it was claimed that they had special need to draw their full pay.

⁹ This included a review of all airmen then overseas because "there is no doubt that a number of trainees from the earlier courses were of a type suitable for commissions but failed to receive appointments thereto because of the limitations in the number of commissions granted at the conclusion of flying-training courses. It is also believed that many of those still serving as sergeants would have been commissioned were they in competition with others on subsequent courses, although such others have been commissioned in preference to still others who underwent training with them at such later courses".

There were occasional criticisms that the earliest aircrew selection boards in Australia did not pay sufficient attention to academic qualifications and accepted students with much zeal but insufficient application. The following tables extracted from "Investigation into the Background of Aircrew enlisting under the British Commonwealth Air Training Plan during the first twelve months of recruiting" by W. R. Clark of the Official War History Branch would appear, however, to show the very high standard of the early pupils.

Educational Standards of Graduate Aircrew

	All Categories %	Pilots %	Observers %	W-Air Gunners %
Higher	6	6	10	3
Senior	32	31	48	13
Junior	54	56	41	60
Under Junior	8	4	1	24

Civil Occupations of Graduate Aircrew

	All Categories	Pilots		Observers	W-Air Gunners
		M-E ¹	S-E ²		
Professional	2	3	2	2	—
Student	3	3	3	3	1
White collar	62	68	52	74	50
Small business	4	2	6	5	4
Skilled and semi-skilled	15	10	20	8	24
Primary production	14	14	17	8	21

Higher = University or Diploma standard.

Senior = Five years successful secondary education.

Junior = Four years successful secondary education.

¹ M-E—multi-engined aircraft

² S-E—single-engined aircraft

desired that at least one Australian officer should be a member of every selection board from its earliest stage, and that the same principle should apply in cases of courts-martial. The need for a personnel reception and disposal centre was restated not only in the interests of the men themselves but as being the only practical way in which comprehensive records could be compiled for each individual before and after his attachment to the R.A.F. and thus facilitate personal and inter-governmental financial settlements. Guidance was also given on the somewhat vexed question of overseas tours. The previous intention of relieving both air and ground crews of the permanent squadrons after twelve months' service overseas was cancelled in favour of a common system:

... it is, therefore, proposed to try out in practice:

- (a) The relief of ground staffs after about two years' overseas service.
- (b) The relief of aircrews without distinction as to where employed as opportunity offers, but based on the necessity to recall operationally experienced personnel.

To assist in general administration, new establishments were authorised for Overseas Headquarters by this memorandum. Provost services were to be set up in London and Cairo. Provision was made for three chaplains in Great Britain and three in the Middle East.¹ The importance of news from home was recognised by authorisation of Australian base post offices in London and Cairo; welfare officers were also to be appointed to work in close cooperation with the Australian Comforts Fund. All these additions attacked one aspect of the problem caused by wide dispersal of Australian airmen; they all eventually not only did good service in their respective tasks but at the same time helped the creation of a central records system by bringing men who otherwise might have made no effort themselves, into personal contact with the headquarters. The gap between intention and action is again apparent, however, in that a welfare officer for duties in London, although approved in June 1942, was not chosen until December and did not arrive to commence duties until March 1943.

The general purpose of the new directive was to widen the powers of Air Marshal Williams to allow him to exercise the full powers of the Air Board in the administration of Australian airmen overseas (excluding Canada and the South-West Pacific) and it was proposed formally to post all men sent overseas to Overseas Headquarters, which would then attach all those surplus to permanent squadron requirements for duty with the Royal Air Force. The air officer commanding could in future effect remustering, reclassification and promotion of all airmen and appoint to commissions, confirm and promote officers in consultation where necessary with the Air Ministry. This administrative authority was to be exercised in accordance with Australian and not British conditions of service.

¹ In each case one Church of England and one Roman Catholic padre and one to give guidance to all other Protestant adherents. Concerning these appointments "it is desired that the greatest use be made of these chaplains, not only for religious duties including visits to the sick, but also to keep in touch with RAAF personnel and to become acquainted with their outlook generally, and to judge of their morale and general well being. They are not to be allotted to other duties which will interfere with the above nor which are more appropriately those of other branches".

Thus, by the end of 1942, a conscious effort had been made to eliminate some of the administrative difficulties apparent in Australian oversea deployment and policy enunciated for a closely integrated national force. Meanwhile, in practice, much had occurred to render inoperative these plans, which were aimed more precisely against the difficulties of 1941 than of 1942, a year of tremendous dangers which spread Australians even more widely geographically, but also a year of tremendous preparations which dispersed them functionally. These difficulties were not immediately apparent because the cessation of aircrew drafts from Australia entailed the arrival at Bournemouth of only approximately 1,000 Australian airmen during the first six months of 1942 compared with over 2,500 in the latter half of 1941. This permitted the Australian Section to improve its reception and training arrangements. Two important factors affecting postings from Bournemouth were also partly hidden for Australians by the temporary diminution in arrivals. One was the Bomber Command decision to man heavy aircraft with one instead of two pilots thereby causing greater delays for this category; the other was the policy, partially begun in November 1941 but becoming almost complete during this period, of posting men from Bournemouth not direct to operational training units but to refresher units in Training Command.² The attachment, during the spring, of parties of Australian airmen to army units also gave purpose to men awaiting posting, and by July there were only thirty-two transient aircrew on the strength of the Australian Section.³ The situation seemed well in hand and White had already on 1st June been attached as unofficial (later confirmed) liaison officer at the Headquarters of Flying Training Command in which there was an obvious concentration of Australians. The situation at Bournemouth during this period is set out in the accompanying table.

1942	Arrivals					Posted					Not Posted				
	P	O	WAG	AG	Total	P	O	WAG	AG	Total	P	O	WAG	AG	Total
Jan	58	37	57	2	154	130	58	158	11	357	114	27	64	12	217
Feb	128	53	46	14	241	130	25	40	21	216	112	55	70	5	242
Mar	157	53	25	4	239	74	61	71	8	214	195	47	24	1	267
Apr	9	7	30	2	48	156	40	24	2	222	48	14	30	1	93
May	111	41	37	144	333	60	32	62	48	202	99	23	5	97	224
Jun	1	54	9	3	67	72	44	10	95	221	28	33	4	5	70
Total	464	245	204	169	1,082	622	260	365	185	1,432					

² This policy was designed to raise all oversea products to a common level permitting easy training at the OTU phase. As all basic training was being moved out of Gt Britain, the airfields not needed for operations became available for this type of training.

³ Very heavy postings were possible during the spring and early summer of 1942. The total strength of the Bournemouth Station Training Section (ignoring men of all nationalities undergoing reception procedures, on leave, or temporarily attached) was only 105 whereas the capacity was 1,250.

It will be seen from this table that the flow of various categories of aircrew during this period was very uneven (85 per cent of straight air gunners arrived during a single month). Total postings although fairly constant month by month and practically exhausting Australian stocks gave little chance that even a majority of the men would become crewed up together as was the professed Australian intention. The situation deteriorated during the second half of 1942 because, although, as has been seen, a separate Australian P.R.C. emerged so that problems of reception and record keeping were virtually solved, the resumption of drafts from Australia and the onset of winter conditions which impeded flying training again caused large numbers to build up at Bournemouth. In addition to the local training course of three weeks in ground subjects it was necessary by December to employ the following expedients to occupy aircrew during their lengthened stay:⁴

- A. Pilots, navigators and bomb aimers were attached to elementary flying training schools for acclimatisation and map reading. At first capacity was very limited but soon four schools in No. 50 Group and five in No. 51 Group were accepting pupils.
- B. Aircrew in increasing numbers were attached to Army units.
- C. Administration and leadership courses for officers and N.C.O's.
- D. A naval training section was opened at Bournemouth giving a weekly course in ship recognition and naval liaison matters.

In July the posting arrangements were modified. Hitherto postings had been effected by block lists compiled, one for pilots and another for all other categories, at the Air Ministry. There was no personal element, selection being made purely from training records and according to existing vacancies. Brothers and comrades were often needlessly separated and Australians were scattered among all training units. Now the authority for such postings was delegated to Flying Training Command and a small selection party was set up at Bournemouth to correlate general requirements with the individual wishes of the pupils themselves—but this board dealt only with pilots. In October, when the Australian P.R.C. became a separate unit, direct communication was possible with Flying Training Command and the Air Ministry so that further improvement was possible. The “central postings organisation” promised in the Ottawa Agreement still did not exist, however. Although, in September 1942, an Australian officer began to work with the Bournemouth posting panel, this affected only initial direction into training units; posting from these to operational training units was done by the Air Ministry;⁵ posting from operational training units to squadrons was the responsibility of the various commands themselves.

⁴ The estimated wait at Bournemouth in Dec 1942 was:

Pilot, 9½-11 weeks.

Navigator, Nav Bomb aimer, Air Bomber, 10½-12½ weeks.

Nav Wireless, 5-8 weeks.

Air Gunner, 1-3 weeks.

Note: Air Bomber=Bomb aimer.

⁵ In 1941 an Australian offr began work at Air Ministry but his position was advisory rather than executive.

The flow of aircrew through Bournemouth during the second half of 1942 was as in the accompanying table from which it will readily be seen that the number of men arriving at Bournemouth more than doubled compared with the previous period but that the monthly figures fluctuated widely.⁶

1942	Arrivals					Posted					Not Posted				
	P	O	WAG	AG	Total	P	O	WAG	AG	Total	P	O	WAG	AG	Total
Jul	4	8	13	2	27	25	30	7	3	65	27	11	10	4	52
Aug	433	113	46	40	632	135	36	9	—	180	305	88	47	44	484
Sep	56	10	12	5	83	331	82	46	46	505	29	16	13	3	61
Oct	63	45	13	13	134	78	50	12	12	152	15	11	14	4	44
Nov	601	249	105	168	1,123	21	9	14	8	52	595	251	105	164	1,115
Dec	292	176	108	21	597	116	116	93	67	392	771	311	119	119	1,320
Total	1,449	601	297	249	2,596	706	323	181	136	1,346					

The Australian depot was again virtually empty at the end of October; and this point, which was never again to be attained, also serves as the dividing line between the periods of remote and Australian-influenced postings of men from Bournemouth.

Wing Commander White commenced duty with Flying Training Command on 1st June 1942 and by early in October had visited and reported on forty schools or satellites where Australians were then present either as pupils or instructors. At this time there were few serious criticisms from pupils who were only too pleased at the prospect of soon being on operations. Some pilots originally trained on single-engined aircraft were dissatisfied when sent to advanced flying units for twin-engined aircraft; the makeshift nature of early navigator and wireless-air gunner training at observer advanced flying units was criticised; and there was inevitable discomfort where men had to accept accommodation originally intended for basic trainees. All these apparent faults were quickly forgotten when the reasons for them was explained to the men, and the only grievances which remained general concerned the feeling of Australians that they were too dispersed, were badly served by postal arrangements and general contact with home news, had great difficulty in getting Australian equipment, and were for the most part out of touch with welfare organisations—on all of which points they could not help contrasting themselves with Canadian pupils.⁷ These general matters also affected instructors, although to a lesser extent, since, as they were static, most of them soon made satisfactory arrangements for mail, uniform and comforts, and by making

⁶ More men arrived in the peak month of Nov than Jan-Jul inclusive.

⁷ The Australian Comforts Fund was anxious to help Australian airmen but its rigid system of demand and dispatch to officially notified locations simply would not cope with the expansion of units and the rapid dispersal and circulation of airmen. There was no welfare off at OHQ and the ACF had no field offrs or sub-depots. The same difficulties attended voluntary organisations which tried hard to distribute Australian newspapers and periodicals.

firm local friends they lost some of the sense of isolation. Instructors, however, had more precise and deep-seated grievances. In August 1942 there were seventy-seven Australian instructors in Flying Training Command and the number was constantly rising.⁸ Of this number only fifteen were volunteers and only four had any appreciable operational experience. There was a general resentment against non-operational duties and a feeling of unfairness as the Canadians had made arrangements that their men should not be so employed.⁹ Australians felt strongly that, as men were retained in Australia and others held in Canada for instructional purposes, all arriving in Great Britain should be used in actual operational work. This was a fallacy because in the main such Australians were detailed in Britain only for instructional work at the A.F.U's and not for basic training for which they had already been "creamed off" elsewhere. The rapid increase in requirements occasioned by introduction of advanced flying units in 1942 could not be met by volunteers and it was vitally necessary that suitable instructors should be detailed. Once the position was suitably explained it was generally accepted and Australian antipathy centred more on the length than the principle of such service. Policy was vague at first, and on 18th August 1942 White reported to Overseas Headquarters that at No. 1 (Observers) Advanced Flying Unit at Wigtown he had been confronted by Australians who had almost completed twelve months' service as staff pilots whereas they had been categorically promised that the tour was only six months. Similar instances were reported from other schools, although by carefully checking some of these it is obvious that Australians tended to make at least bold exaggerations of their non-operational service in the hope of being posted to more active work. Again this was a situation which could be met only by emphasising the real value of this type of contribution and an attempt to create a common system. Gradually the non-operational tours became fixed as 18 months for instructors and 12 months for staff pilots. Although these frequently had to be extended because of the constant outpacing of supply by demand it did give a fairly definite ruling so that for the greater part of their service Australians worked happily and purposefully.

The greatest anomaly which White found in Flying Training Command, however, was the general ignorance (unparalleled except perhaps in the Middle East) of promotion and commissioning policy. In all his visits to units he did not encounter an Australian flight sergeant until 10th August. Repeatedly he drew the attention of commanding officers to Air Ministry Order A/1087¹ but some professed no knowledge of it, some thought that it had been superseded by automatic promotions, and in very few cases had any action been taken. At the same time there was a very high degree of cooperation once Australian requirements were understood, and the

⁸ 100 in Dec 1942; 167 in Jun 1943; 309 in Dec 1943.

⁹ This was later altered and all Dominions shared in the work.

¹ Issued Dec 1941. The operative clause was: "The Air Officer Commanding Overseas Headquarters Royal Australian Air Force, Kodak House, Kingsway, London, W.C.2, is the responsible authority for the promotion of airmen of the Royal Australian Air Force, and Commanding Officers of such airmen serving in the United Kingdom . . . are to forward recommendations direct to him immediately and subsequently on the first day of each month"

position improved rapidly as a result of these visits and of explanatory circulars sent out by Flying Training Command at White's request.

A considerable amount of repair work thus went on throughout 1942 to cover administrative faults which had arisen either through the failure to make adequate provision beforehand or through the new emergencies which altered the early simple conception of the Empire Air Training Scheme. Air Marshal Williams and Air Vice-Marshal Wrigley² (who replaced him in London) also strongly pressed Australian administrative claims during a series of conferences to amend and extend the original two-party training agreement. The outcome of these discussions was the signing on 31st March 1943 of two documents very favourable to Australia, which clearly show despite what was to happen in practice, that Great Britain was willing to concede in principle the claims which Australia had advanced throughout the protracted negotiations. One of the new documents was simply a financial agreement between Britain and Australia (concurred in by Canada) that all Australians trained in Canada irrespective of aircrew mustering should be charged for at a set rate of \$7,000 and that all such capitation fees should be deducted from Britain's share of the total Canadian costs.³ The other was specifically to define arrangements for the continuation for two years if necessary of the existing training organisation in Australia. While agreeing to make the majority of trainees available "for service with, or in conjunction with, the Royal Air Force" Australia was to retain whatever portion of the output she required to man her own squadrons or form new ones as aircraft became available. Australia was to continue to bear the prime cost of all training in Australia but received some benefit from an increased British contribution in kind, chiefly aircraft and spares, and also freedom from financial liability for any British personnel lent to implement the scheme, and for transportation costs for any Australians repatriated for any cause before the end of the war.

The real strength of the new agreement lay in two appendices specifically modifying clauses 10 and 12 of the main text. Appendix II dealt with the conditions of service of Australians overseas and stated firmly that "personnel of the Royal Australian Air Force serving with, or in conjunction with the Royal Air Force will remain under the conditions of service of the Royal Australian Air Force". Commissioning policy and procedure in general was to follow that agreed on at Ottawa, although the cases of all men not accorded commissions on graduation were to be reviewed after a lapse of six months, provided they had by that time begun productive flying either with squadrons or as instructors. As with Canadians, individual Australians could make personal applications or their cases could be raised by liaison officers, although the normal method of commissioning airmen was still to be the periodic recommendations of

² AVM H. N. Wrigley, CBE, DFC, AFC. (1914-18: Capt Aust Flying Corps; 2 and 3 Sqns). Comd 1 Gp 1939-40; AOC Sthn Area 1940; Air Mbr Personnel 1940-42; AOC Overseas HQ RAAF 1942-46. Regular air force offr; of East Malvern, Vic; b. Melbourne, 21 Apr 1892.

³ This flat rate was as from 1 Apr 1943 and replaced the variable charges for different categories agreed on in Jun 1942 at Ottawa which in turn had replaced the original Australian responsibility for a proportion of all costs of the scheme.

unit commanders followed by selection board procedure in which the air officer commanding Overseas Headquarters was to have confirming and overriding powers. The major change in conditions of service was seen, however, in clauses which ensured that in future Australians would receive full Australian rates of pay without the limitation in the previous agreements that while overseas they should draw only amounts equivalent to R.A.F. rates. This appendix also repeated the policy in respect of overseas tours already incorporated in the second Ottawa Agreement—that whenever possible ground staff should be repatriated after two years, and also aircrew should not do two operational tours if there were sufficient men trained who had yet to commence their first tour, but that until that position was reached they might be called on for two operational and two non-operational tours. A new clause was introduced, however, that non-operational employment should be as instructors “or in staff appointments, particularly staff appointments in establishments of units of the Royal Australian Air Force and in those Station and Group Headquarters to which R.A.A.F. Squadrons or R.A.F. Squadrons selected to receive R.A.A.F. aircrews are allotted . . .”

This constant reiteration that Australians should be concentrated as much as possible found its full flowering in Appendix III of the same document. This appendix alone was equal in length to the main text and the other appendices combined and began with a brief outline of Australian administrative machinery in being or contemplated. Provision was made that any liaison officers within commands, and men serving at the Air Ministry or at the Royal Air Force Records Office would be borne on the establishment of Overseas Headquarters and would not fill posts in the personnel establishments of the R.A.F. Thus they would have direct communication with Overseas Headquarters and would carry dual functional responsibility to that headquarters and also to British authorities. This switch in emphasis was also noticeable in relation to the Australian personnel depot whose officer commanding was to “select aircrew and other personnel in the reception section of the Depot for posting to training and other units in accordance with the general training and operational requirements of the Royal Air Force . . .” These clauses were designed to give Australia not only better records but a high degree of policing over the employment of her airmen. Liaison staffs in the Middle East and India which derived their authority from and were to remain under the functional direction of Overseas Headquarters were to ensure that all administrative procedures obtaining in the United Kingdom were applied as far as practicable to all areas.

For the first time the long-standing but often misunderstood Australian demands concerning the retention of national identity of her airmen were included in a high-level agreement. Thus paragraph 14 of Appendix III clearly stated:

. . . it is recognised as the express wish of the Government of Australia that:

- (a) personnel of the Royal Australian Air Force shall wear the uniform of that Force;

- (b) they shall serve together in crews of aircraft and shall not be posted to units in such a manner that they become scattered in small numbers throughout the Royal Air Force;
- (c) they shall not be employed in remote localities unless in sufficient numbers to facilitate the carrying out of the administrative responsibilities with which the Air Officer Commanding Overseas Headquarters, Royal Australian Air Force, is charged;
- (d) they shall, subject to operational exigencies, be commanded by officers, warrant and non-commissioned officers of the Royal Australian Air Force.

With these principles in mind it was stipulated that there should be prior consultation between the Air Ministry and the Overseas Headquarters on all except routine matters affecting the employment of Australians and that the Overseas Headquarters "will be entitled to enquire into and make direct representations to the Air Ministry about the well being and necessities, either individually or collectively, of such personnel". Subject to operational needs, headquarters could exercise the right of recall from attachment to the R.A.F. of any individual, and its concurrence was to be sought for any posting of Australians of the rank of wing commander or above. Moreover in relation to the *Article XV* squadrons it was to approve the selection of all commanding officers and (except in fighter squadrons) flight commanders.

Two legal matters received some prominence in the agreement. Firstly, all British aircrew or airmen serving with *Article XV* squadrons were to be attached to the Royal Australian Air Force while so serving. Secondly, all courts-martial were to be convened when legally applicable under R.A.A.F. law and the court to be composed entirely of Australian officers unless they should not be available. For courts-martial convened under R.A.F. law the president and as many members of the court as possible were to be Australians. Proceedings of district courts-martial were to be passed to the Overseas Headquarters for review after promulgation, and those of general courts-martial for review prior to confirmation.

Australia did not propose that the number of her *Article XV* squadrons be increased from eighteen in the same ratio as that accorded to Canada,⁴ but the formation of those not already formed under the original quota was to be effected as soon as practicable. One of the main reasons, as will be seen, was the difficulty of providing ground staffs for *Article XV* squadrons, and the clauses in the earlier agreements promising full ground staff backing were restated less precisely by:

These eighteen squadrons will be commanded and manned by personnel of the Royal Australian Air Force as far as possible and other personnel will be posted thereto only to fill such vacancies as cannot be filled by personnel of the Royal Australian Air Force.

... every effort shall be made to replace such personnel as soon as practicable by personnel of the Royal Australian Air Force.

⁴ The Ottawa Agreement of Jun 1942 increased the Canadian allocation from 25 to 35. It has been seen in Chapter 5 that in 1941 Australia made tentative enquiries about increasing her quota and at the Ottawa talks AVM Goble was informed that on the basis then being considered Australia was entitled to an increase from 18 to 25 squadrons.

This decision not to increase the number of *Article XV* squadrons meant, however, that there would be an ever-increasing number of Australian aircrew who could not be absorbed by the existing units. To meet this difficulty it was stated that a number of R.A.F. squadrons would be chosen and "so far as practicable Australians will be posted to these squadrons".

Finally as a further measure of concentration of Australians it was formally agreed that:

- (a) *Subject to operational exigencies* the flying-boat squadrons of the Royal Australian Air Force will be located together at a selected R.A.F. station.
- (b) Bomber squadrons of the Royal Australian Air Force in the United Kingdom will be located as far as operational exigencies will allow at selected stations and within a selected Bomber Group of the Royal Air Force.
- (c) *Unless otherwise mutually agreed*, squadrons of the Royal Australian Air Force yet to be formed . . . will be bomber squadrons and will, subject to operational exigencies, be located within the same Bomber Group as those referred to at (b).
- (d) Squadrons of the Royal Air Force selected to receive aircrew personnel of the Royal Australian Air Force will as far as practicable be located within the same Bomber Group of the Royal Air Force as bomber squadrons of the Royal Australian Air Force.

Australia thus at last received full recognition of her national aims in respect of her airmen, together with full authority to make these aims effective if circumstances would permit. Had these aims been clearly stated and accepted from the outset and comparable machinery set up at a much earlier date it is possible that the pattern of Australian contribution would have been materially different. As it was, by the time this agreement was signed approximately 8,400 Australian aircrew had arrived in Great Britain alone and had been absorbed in operational units or a vast complex post-graduate training system, neither of which had paid or could easily be altered to pay precise attention to Australian aspirations. The machine was working at full capacity, but its final output barely satisfied the continually growing demand; obviously it could not be stopped, and even attempts to fit governors or to feed in special rather than universal material caused many difficulties. The "subject to operational exigencies" and the "as far as possible" clauses scattered thickly throughout this high-level agreement, although at first sight relatively unimportant, assumed very great importance at practical levels, and for the most part Australia was still left chasing a dream rather than a reality. In many ways the reinforced authority of Overseas Headquarters and the public acknowledgment of Australian desires halted and to a certain extent reversed the centrifugal tendencies previously in operation. Only one of the eight "express wishes" of the Australian Government solemnly ratified in this agreement had more than partial success, and that one—the wearing of distinctive uniform—had been attained from the beginning.

This failure was not due to want of effort, because, armed with its new authority, Overseas Headquarters during May 1943 brought to the attention of the Director-General of Postings, Air Ministry, that Australians were then scattered among at least 135 squadrons in Britain alone. The

Air Ministry undertook to write to the various commands requesting their cooperation to improve the position, and Overseas Headquarters also made independent representations to them. Fighter Command was asked to note that it held 73 Australian pilots spread over 18 Spitfire squadrons and 13 pilots in 8 Typhoon squadrons, and that an opportunity obviously existed to concentrate these men into squadrons with a distinctive Australian character. Coastal Command similarly had 20 Australians in 5 Sunderland squadrons, 9 in 4 Beaufighter squadrons, 27 in 3 Fortress squadrons, and 28 in 3 Hudson squadrons. Little was done, however, in either Command because, at working levels, it was felt that a wide spread of nationalities and talents gave the best operational results. Australia was herself at fault in that she lagged behind other Dominions and Allied nations in appointing to the R.A.F. commands liaison officers who could have brought day-to-day pressure on the problem. Such posts were not established for Fighter and Coastal Commands until November 1943.

In the Middle East and India the wide geographical scope of commands, the very varied nature of squadrons and constant movement presented special difficulties to R.A.F. authorities and the Australian liaison officers in any attempt to secure concentration. In the Middle East crews specially trained and sent out from Britain to back existing *Article XV* squadrons were on occasion diverted to other squadrons and little more than lip service was paid to the concentration of men into national squadrons. In the India theatre where there were no Australian squadrons, there were in May 1943 approximately 330 Australians serving among 41 different squadrons, only 9 of which had more than 10 Australians on strength. Again a promise "subject to operational efficiency" was made that Australians would be brought together in groups but little change actually resulted and as late as January 1945 when the actual Australian aircrew strength in this theatre had risen to 872, they were disposed among 106 units; 590 with 60 operational squadrons and 282 in 46 non-operational formations.

It was in Bomber Command, however, where perhaps the most exasperating situation existed. Australia had decided to put an ever-increasing proportion of her airmen into this command, but the anomaly existed that while *Article XV* squadrons were still only partially manned by Australians, large numbers were serving with other squadrons of all groups. It seemed incomprehensible that with the Australian depot literally overflowing with all types of basically-trained aircrew that the aim of homogeneous crewing, full staffing of *Article XV* squadrons and concentration of other Australians into nominated R.A.F. squadrons could not be achieved. To this end No. 27 Operational Training Unit at Lichfield had already been specified as the unit backing Australian squadrons. Theoretically this unit which maintained four courses with an average intake of eighteen crews per course in summer and eleven in winter for a ten-weeks' period of training should have provided more than twenty crews each month, ample for Australian requirements. Lichfield, however, was still

receiving a very ill-matched input for each course and the proportion of complete Australian crews was not large.

The main reasons for mixed crewing thus appeared to be inside Flying Training Command and in the method of posting men from that Command to operational training units. On 21st January 1943 the Australian P.R.C. suggested that men should not be posted but only attached to advanced flying units, so that they would remain on strength of an Australian unit which could watch more closely over their entry into operational training units. This suggestion was not adopted because the Air Ministry thought it imperative to retain complete control over such movements. Australian effort then switched towards obtaining some concentration of men within Flying Training Command itself as the first preliminary to a matched flow through operational training units and on to squadrons. The Command itself was very willing to cooperate and agreed that Australian instructors and staff pilots could be posted to a small number of units up to 30 per cent of establishment. The Australian liaison officer then arranged with the Aircrew Selection Board at Bournemouth to post Australian pupils to the same units, and this action was agreed to by Flying Training Command. As a result the number of Australian pilots at No. 15 (Pilots) Advanced Flying Unit, Babdown Farm, rose from 174 on 13th April to 280 on 25th May 1943. The Air Ministry, however, ruled that this concentration was undesirable and stated in a letter to Flying Training Command on 29th May:

. . . This practice is contrary to Air Ministry policy, which has been represented to Bournemouth on several occasions, that Dominion pupil pilots should be spread as evenly as possible over the (P) A.F.U.'s and it is accordingly requested that concentration of Dominion pupil pilots into any particular (P) A.F.U. be discontinued forthwith

In the face of this definite pronouncement and the desire of men to take any posting that presented itself, Australians again became widely scattered, although efforts were continually made, at times successfully, to channel them into the units which already had Australian instructors.⁵

Because there was such an obvious disparity between the wishes of the Dominions and results in practice, the Director-General of Postings issued on 28th May 1943 a comprehensive paper on the vexed questions of "Dominionisation" and "Concentration". He postulated five considerations governing the posting of men to operational training units:

- (i) It is essential that O.T.U.'s should be kept fully supplied with aircrew material as intakes become due. Such material should so far as possible be fully up to the training standard laid down. When it is necessary to utilise "sub-standard" material the best of the "sub-standard" should be used.
- (ii) Each O.T.U. must be given an equal opportunity of maintaining its output of trained crews and it is therefore necessary to distribute to each a fair share of the fully-trained and of the "next best" material.
- (iii) So far as possible the available officer personnel should be distributed equally.

⁵ The Air Ministry in the letter quoted above approved of concentration of Dominion instructors.

- (iv) In deciding the particular O.T.U. to which pilots should be posted, cognisance has to be given to the individual's previous training, the recommendations made by the instructors at the schools through which he has passed, and so far as possible, preference of the pilot for particular types of aircraft.
- (v) Nearly all operational types of aircraft have certain limitations as regards the physical dimensions of the various members of the crew which can be fitted into them.

Again the number available for posting to operational training units was governed not by reserves at Bournemouth, but by the output of the advanced flying units, which, because they had inferior airfields and maintenance facilities, often found it difficult to adhere to a set length of course even when sickness or need for additional training did not prevent the availability for posting of individuals. From the total weekly output many had to be earmarked for instructional and special operational requirements.

Week by week therefore the postings Directorate is presented on the one hand with a block of material, seldom sufficient in quantity, of varying degrees of ability, and of mixed identity to meet those requirements The *Article XV* Squadrons are fed from particular O.T.U.'s When these O.T.U. intakes coincide with the availability of fully-trained air crew personnel of all categories ex A.F.U.'s, dominionisation is simple. When, however, dominion personnel are available but the appropriate O.T.U. does not happen to be intaking, this personnel may necessarily have to be utilised to meet other current requirements if the maintenance of front line squadrons is not to be jeopardised

The paper then gives details of the men available on 18th May 1943 and their actual distribution. Two O.T.U.'s (Nos. 22 and 23), backing Canadian squadrons, required in all 36 complete crews and got their full requirements except for wireless air gunners, no Canadians being available. No. 11 O.T.U. which had a commitment for 4 New Zealand crews from its intake of 18 crews, received suitable numbers of each category. No. 27 O.T.U., the Australian O.T.U. at Lichfield, was not intaking that week so the available Australians were distributed as in the table on page 550.

This meant, inevitably, that 59 crews headed by Australians would be formed but not one would be suitable for posting to an *Article XV* squadron or even one of the proposed nominated squadrons in which Australians were to be concentrated. Moreover, as more than two-thirds of the straight air gunners in the week's total intake were Canadians, it was inevitable that most crews would have more Canadians than Australians and thus be more suitable for Canadian nominated squadrons. On the other hand, in weeks when No. 27 O.T.U. required aircrew, Australians might not be available. Thus, on 23rd March 1943, to form 18 crews only 13 pilots, no navigators, 3 air bombers, 4 wireless air gunners and 9 air gunners were Australians, permitting a single truly-Australian crew only by the reclassification of one of the air bombers; seventeen crews quite unsuitable for *Article XV* Squadrons would inevitably be formed. This was by no means an isolated example at this time because

another course at Lichfield at the same time held 7 Australian pilots, 15 navigators, 17 air bombers, 1 wireless air gunner and 41 air gunners from whom only one complete and seven predominantly-Australian crews were formed.

O.T.U.	Crews Required	Pilots	Navigator	Air Bombers	WOAG	Air Gunners
No. 10	18	6	—	1	—	—
15	18	8	—	—	2	—
19	16	—	—	—	—	—
22	18	—	—	—	—	—
23	18	—	—	—	—	—
24	17	—	—	—	—	—
11	18	12	—	—	—	2
12	18	—	—	2	—	—
13	6	1	—	—	—	—
14	18	9	—	—	—	—
16	18	15	—	—	—	—
26	16	—	—	—	—	—
29	18	8	—	—	—	—
	217	59	—	3	2	2

There were, of course, two methods by which this dispersal could be overcome; either by "storing" national categories until they could be posted in matched numbers, or by breaking up crews; but neither of these were acceptable to Bomber Command. All that Overseas Headquarters could do was press for greater consideration for postings to No. 27 O.T.U. This was done, and with the arrival of an Australian commanding officer (Group Captain Heffernan) in June 1943 and the concentration there of both Australian pupils and instructors, the crew position for *Article XV* squadrons improved immensely towards the end of 1943. In August 1943 the Air Ministry also supplied Overseas Headquarters with details of the weekly outputs of all O.T.U's so that representations could be made concerning the use to which Australian aircrew were put. At the beginning of September 1943 there were 1,810 Australians in 24 Bomber Command operational training units; 690 of these were at No. 27 O.T.U., 293 at

No. 21 O.T.U. Moreton-in-the-Marsh which fed overseas *Article XV* Squadrons; there were approximately 100 at each of Nos. 12 and 15 O.T.U.'s but the remainder were spread in relatively small numbers which inevitably meant a very small incidence of fully-Australian crews.

It was thus not possible during 1943 to proceed far with the plan for concentration of Australians into nominated R.A.F. squadrons and they remained fairly evenly spread throughout the main bomber force. Nor because of differing equipment, non-provision of ground staff and of senior staff officers, was it practicable to bring the existing *Article XV* squadrons together in one group. Australia was too preoccupied with her own needs in the Pacific to provide the two classes of men which would have given real solidity to her overseas effort. At the beginning of 1942, two group captains, three wing commanders and three squadron leaders had been sent from Australia but these were only sufficient to command existing Australian units. The two-party agreement in March particularly requested that Australians should be given staff appointments in Bomber Command, but the Royal Air Force was reluctant to place officers in the higher operational and training posts unless they already had considerable administrative experience, which E.A.T.S. graduates, however brilliant they might be on operations, had had little chance to acquire. As there was no continuing flow of experienced officers from Australia there was no Australian filling a staff post at either Bomber Command or at a group headquarters as late as October 1943, although by that time Canadians had been integrated in significant numbers. It was to be some time before Australians were available to act as commanding officers of bomber stations.⁶

Many factors which complicated the employment and disposition of Australian airmen during 1943 first became apparent at the personnel reception centre. The number of Australians awaiting posting at Bournemouth had reached 1,943 by 1st May 1943 and, as it was clear that Bournemouth would no longer hold all Dominion pupils, the Air Ministry offered R.A.F. Station, Brighton, as alternative accommodation for Australians and New Zealanders. The latter had previously been administered by No. 11 P.D.R.C. but were now to form their own depot (No. 12 P.R.C.). The move took place between 27th-31st May, and Wing Commander White returned from Headquarters Flying Training Command to command R.A.F. Station, Brighton. From this time onwards except for a brief period during 1944 Brighton remained an Australian station and all the key positions were held by Australians, although it was necessary to rely heavily on R.A.F. resources for junior staff and practically all facilities. Experienced operational aircrew began progressively to take over the administration of reception, training and posting of the pupils and their influence did much to alleviate the frustrations caused by ever-lengthening waiting periods for some aircrew categories. Reception itself was by now a smooth running routine which was only partly upset by the move to

⁶ Gp Capt Wilson was a prisoner of war in Germany; Gp Capt Heffernan commanded 27 OTU. Other men in Bomber Cd were as yet too junior in rank.

Brighton and the large size of intakes. During the year 8,625 men—well over double the figures for any previous year—were met, housed, kitted, collectively and individually interviewed, medically examined, their records completed, pay and allotments regularised and sent on disembarkation leave.

Training presented a more difficult problem as men of very differing standards were now arriving. Most were fresh from training schools but some were instructors who had served in Australia, Canada or Rhodesia, some were members of crews already formed at Canadian and other overseas O.T.U's, and a few were men who had already some operational experience in the Middle East. In general the system of three weeks refresher training preceded by or followed by attachments to a wide variety of useful courses, was maintained.⁷ A considerable stock had to be kept ready for posting needs which could not always be precisely forecast as the advanced flying unit courses were elastic, and these men were employed on local duties in Brighton, manning gun posts or on security duties. In July 1943 the attachments to army and elementary flying courses were discontinued and the average number of men receiving the local course of refresher training rose to 800. This finally proved too great a strain for local resources and, in December, a pool flight was formed and training facilities were reserved for men most obviously in need of up-to-date information.

Posting procedures naturally caused the major difficulties. Supply of basically-trained aircrew continually outpaced the rate of absorption. Only once, in June, did Australian strength fall below 1,000, and it then rose steadily to 1,947 at the end of the year. There was thus a constant and vocal body of men pressing for postings in strict rotation at a time when this system had to be amended both because of current needs and the varying qualifications of the men themselves. In general ex-instructors were given priority in posting but frequently they first needed special training in ground subjects. Members of crews from overseas O.T.U's, especially when other crew members were at different national depots, had to await special posting action by the Air Ministry which would post the crew as a whole. Sometimes these men moved on quickly, but because some overseas O.T.U's had overproduced crews for aircraft which were already being superseded in operational squadrons, the wait was often very protracted until a decision to break up the crew or retrain it on another type was finally made. More general difficulty arose from the subdivision late in 1942 of the original observer category into navigator, navigator bomb

⁷ On 1 May the distribution of aircrew was:

Bournemouth RAF course	3 weeks	525 aircrew
EFTS	4 weeks	326
Naval School	1 week	475
Army courses	12 days	185
NCO Admin Course	4 weeks	192
Junior Officers Course	3 weeks	59
11 Radio School	6 weeks	27
Bridgenorth Commando	3 weeks	17
Ministry of Information	5 days	17
		<hr/> 1,830 <hr/>

aimer, and navigator wireless, because it was some time before Australian schools conformed to the new training sequences and men were reaching Brighton as late as July 1943 still holding the mustering of observer. The same reluctance which men showed in 1942 at being arbitrarily reclassified as air bomber was again very evident, but the Aircrew Selection Board had to use its judgment and decide into which category these men should be put, because although the old observer category corresponded very nearly with the new one of "Navigator B" there was no avenue of employment except Coastal Command which demanded a general reconnaissance training qualification and for which there were adequate stocks already on hand. It was this hasty reclassification of the navigators which in early 1943 helped to disrupt an even flow through A.F.U's. The changing requirements of the air war continued increasingly to demand pupils trained on twin-engined, rather than single-engined, aircraft. Both types were arriving in fairly even numbers but the demand was in the ratio of 3:1 early in 1943 and by December the actual position was that 584 Australian pilots were in twin-engined advanced flying units compared with 45 in single-engined A.F.U's. Apart from disinclination of individuals to change from one type to the other it was natural in times of need that pilots who could most easily pass through twin-engined A.F.U's should be posted before those who required at least a measure of retraining.

Training in Australian schools also caused some delays at Bournemouth and Brighton, because it inevitably concentrated on equipment available in Australia and methods likely to be used in Pacific fighting rather than those which would be encountered in Great Britain. Thus wireless air gunners, although proficient in morse and air operating techniques, knew little of the very complex British signals organisation, codes and wave bands, and had never used the Marconi equipment standard in the Royal Air Force. It was some time before Australian schools adopted the Ottawa recommendation for an increase in length in wireless courses, and by July 1943 there were at Brighton 200 Australian wireless air gunners "below standard in signals". These deficiencies could be and were overcome by local training, but it inevitably introduced another factor into the problem of feeding O.T.U's with balanced crews. Shortage of equipment in Australia also caused very great concern at the standard of gunnery training for navigators, wireless air gunners and air gunners alike. Australian trainees were generally complimented on their natural keenness and ability to learn, but they reached Great Britain with very little practical experience in sighting methods and range estimation, air firing and modern turrets. Aircraft recognition teaching had been largely confined to Japanese types and experience in the use of pyrotechnics was very limited, so again a considerable amount of new experience had to be given before the men were fit for operations. This was only a minor hold up for wireless air gunners because special provision could be made for them at the advanced flying units. Straight air gunners, however, were needed almost immediately they arrived in Great Britain because of the phenomenal increase in the heavy-bomber force and they went direct to O.T.U's and

in some cases did not join their crews until after the O.T.U. stage. In May 1943 a report from No. 29 O.T.U. warned that at an entrance examination given to some Australian-trained air gunners, the marks over the complete course were exceedingly poor. Australia had already extended the air gunner course from 4 to 6 weeks and now stepped up instruction given at depots and aboard ship, but in October 1943 No. 27 O.T.U. which was by no means unsympathetic reported that "the standard of air gunners trained in Australia is far below present day requirements . . ." Unfortunately air gunners who were known to be sub-standard had to be passed on to squadrons where through their own incentive, proper equipment and a wealth of experienced men to help them, they quickly became proficient. Up to this stage, however, they were severely handicapped and better equipment and more realistic methods in the early training of gunners was urgently required.

Australian-trained navigators suffered similar handicaps through lack of equipment and the predominant emphasis on Pacific operations. Their knowledge of signals equipment and its tactical use in night bombing was inadequate, bombing and gunnery practice had been seriously affected by low serviceability of training aircraft and it was often difficult from their training records to decide into which category each individual should be placed. Basic navigation theory was consistently well taught but pupils were arriving throughout 1943 who had employed only the course-setting computer instead of the universal Dalton computer, and who had only demonstration experience of such vital equipment as astro-compass, drift recorder and distant-reading compass. Meteorology had been taught in Australia almost entirely on the cyclonic system whereas in Europe it was essential to employ the frontal system. In all these ways men trained in Australia were at some disadvantage compared with those coming with less delay in transit from the better-equipped schools in Canada where training was precisely aligned with European needs and many instructors had recent operational experience. There was a natural tendency to employ men from Australian schools as straight navigators because their basic knowledge in this capacity needed less augmentation than to repair their deficiencies as bomb aimers.

Another factor which had a noticeable effect on the matched flow of Australian airmen was the progressive raising of physical requirements and restriction of age limits for men undertaking certain types of flying. By mid-1943 pilots destined for heavy bombers were required to have a minimum height of 5 feet 7 inches and an inside leg measurement of 41 inches. In actual fact many borderline cases did escape detection and reach operations but many were eliminated at Brighton, or more importantly at a later stage when their withdrawal often meant a vacancy in a draft or crew which was often filled by a pilot of some other nationality. Their disposal was very difficult because, with an agreeable surplus of pilots of all types, there were many with more forceful claims to flying light operational aircraft than physical inability to fly heavy bombers. By March 1944 the Australian pool of unemployed short-stature pilots had

risen to 85. They could not be repatriated because Australia required aircrew to become "productive" before qualifying for return and this group remained a small but persistent embarrassment.⁸ Again night-vision standards were more strictly enforced and weeding out or delays in the training of Australians caused some dislocation. Air sickness if persistent was another reason for withdrawal of men from training, even when the individual was willing to continue with his duties, as many had done in the earlier years of scarcity. These men and a small number withdrawn for psychological or disciplinary reasons were sent to a special reclassification centre but were rarely again employed on flying duties. Collectively these and other small factors caused an unforeseen wastage problem.

By the end of 1943 aircrew had few causes for complaint once they had reached operational units. The majority cared little whether they were in a separate or an integrated force and had quickly forgotten the frustration of waiting and their sometimes strident criticism of living conditions at some units of Flying Training Command.⁹ Commissioning policy was well understood and in practice was becoming very liberal; the promotion of airmen aircrew had become established on a fixed time basis by which men were now advanced to warrant rank after twelve months' service as a flight sergeant. The new pay arrangements were widely acceptable and the men were now extremely well served by welfare and equipment services provided by Overseas Headquarters. The war, especially in the air, was going well and Australians were buoyed up with the sense of personal contribution; the dangers which in 1942 had seemed to threaten Australia had abated. Morale was very high, especially in Great Britain and the more active sectors of the Mediterranean.

Efflux of time, however, had brought the question of relief and repatriation of Australians into prominence. All men had volunteered for overseas service and originally those attached to the R.A.F. were to remain for the duration of the war. During 1942 Australia had withdrawn ground and naval forces and two *Article XV* squadrons for service in the Pacific, and in that theatre was maintaining a system of regular relief for airmen in advanced operational stations. From Europe and the Middle East the only Empire Air Scheme men repatriated were those pleading exceptional compassionate reasons or individuals whose experience was required for the home war effort. The permanent force units had operated until 1942 on a system of annual turnover of men, but were then placed on the same footing as the Empire Scheme personnel. Interest had been raised by the Canadian scheme contained in the Ottawa agreement for repatriating her men and Australia had herself substantially duplicated the same conditions in her two-party agreement of March 1943.

⁸ In a very small number of cases "oversize bomb aimers" caused temporary difficulty when they were wrongly dispatched to specialist OTU's. They, however, could quickly be re-absorbed into other units but again with a tendency to dispersing Australians.

⁹ Flying Training Cd had a very low priority for works services and conditions at satellite airfields where accommodation was cramped and facilities dispersed. One pupil even secured the intervention of the High Commissioner concerning conditions at one satellite, but the criticisms, while having a basis of truth, were most often a reaction from experiencing somewhat lavish living conditions in Canadian schools and from the absence of the undeniable recreational facilities of Brighton.

There had been little practical difficulty in 1942 once it was generally understood that relatively inexperienced men were not required in Australia. Those who had been longest away were precisely those for whom Australia asked. Thereafter there was a growing problem with both aircrew and ground staff because some of each category had fulfilled the minimum conditions set out in the agreement before it was signed, and the numbers of both rose rapidly during the next nine months. For aircrew the practical limits of the scheme soon became the capacity of the R.A.A.F. in Australia to absorb repatriates, without, as agreed in March 1943, replacing men withdrawn from Europe by drafts additional to the normal flow of basic aircrew. Thus the rate of repatriation of aircrew remained slow and was a virtual continuance of the choosing by Australia of men it particularly desired. In October 1943 Overseas Headquarters began to compile monthly lists of (a) men who had completed two operational tours and (b) those who had completed one operational and one non-operational tour. From these lists selection was made according to the periodic requests from Australia. Those in class (a) had to await vacancies in non-operational establishments in Australia, those in class (b) were available for operational service.

Despite its limitations the aircrew repatriation scheme was a fairly successful safety valve, because its mere existence stilled criticism and did permit some transfers. A very high proportion of the aircrew qualified to return preferred to stay on oversea service where they considered their chances of promotion were better than in Australia, and there was not at this time any real resentment at the limited nature of the scheme. With ground staffs, however, the position was vastly different because for them there was practically no advantage but very severe disadvantages in remaining overseas and they waited impatiently for details of a repatriation scheme which month after month did not materialise. Practically all ground staff serving overseas had departed from Australia during 1941 and would thus fulfil during 1943 the "normal tour" of two years proposed in the 1943 agreement. True the saving clause had been inserted that "the exigencies of the Service may require that it shall be extended in individual cases" but it was difficult to convince the men themselves that "individual cases" should amount to over 80 per cent of all ground staff. That aircrew could be and were repatriated in some cases after serving much shorter periods seemed an obvious injustice.

It has already been seen that during 1942 the Air Board attempted to organise ground staffs then overseas on a logical plan. Towards the end of that year Great Britain explained that the over-all ground crew position was coming desperately close to hindering the air effort, and requested 4,000 more men from Australia to complete the establishments of *Article XV* squadrons. The Air Board thought this was impracticable in face of Australia's own plans for expanded air effort, and in turn proposed to the War Cabinet that 1,200 men—sufficient to man fully a token number of five *Article XV* squadrons—should be sent. The War Cabinet refused to adopt this plan and on 10th February 1943 Overseas Headquarters was

officially informed that "in view of the manpower situation no further R.A.A.F. ground staff are to be dispatched for service overseas with E.A.T.S. squadrons". For a month or two the matter rested, but in May the Chief of Air Staff requested that the War Cabinet permit at least the replacement of casualties and compassionate repatriates from the *Article XV* units. At the same time the plan to reinforce five squadrons was also raised but again rejected, and in fact ground staffs were not concentrated in this way but spread unevenly over all existing squadrons varying from 80 per cent of establishment in No. 450 Squadron to 20 per cent in No. 461 and even less in Nos. 453 and 454 Squadrons.

The Air Board was by no means unsympathetic to the anomalous position which had grown up. The War Cabinet itself had made no definite ruling against repatriation, but, while the War Cabinet forbade replacement of men, the Air Board could not see its way clear to general repatriation. By August 1943, of the 2,740 ground staff then serving overseas, 1,696 had been away from home for more than two years and a further 408 for over eighteen months. Their experience of modern aircraft under war conditions was potentially of equal value in Australia to that of aircrew repatriates, and it was appreciated that the attempt to concentrate them into as few units as possible overseas gravely limited their prospects of promotion because all had originally been of similar standards. For these as well as morale reasons the Air Board felt it was highly desirable to repatriate these men and formulated a plan to ensure not more than two and a half years' service overseas by returning 100 senior men each month and replacing them with the same number from Australia. Early in October the Minister for Air considered this proposal, and, while appreciating the salutary effect it would have both at home and overseas, he decided not to carry it further because the War Cabinet was then considering the transfer of some of the *Article XV* squadrons to Australia and had ordered "a complete review of personnel commitments of the three Services".

A few days after this decision to defer the replacement plan, Overseas Headquarters cabled that Air Vice-Marshal Wrigley's recent inspection of units in the Middle East had confirmed that lack of repatriation with its resultant restriction on promotion and remuster to aircrew was having "an extremely serious effect on morale and efficiency" of the ground staff and was "assuming serious proportions". The cable emphasised that some general scheme of relief would have to be devised if serious repercussions were to be avoided. The Air Board immediately pressed that representations should be made to the War Cabinet but at its meeting on 4th November that body again deferred any definite decision.

Publicity in the press was by this time caustic and frequent.¹ Wives and mothers had begun to write to their members of Parliament. Evasive and somewhat misleading replies were being sent out which gave the

¹ The *Herald* (Melbourne), 11 Nov 1943, reported an Australian in the Middle East as saying: "Australian airmen were apparently regarded by some as a token force in Europe and politicians back home, having recalled the land forces, did not seem conspicuously interested in them."

impression that it was British and not Australian authorities which were holding the men overseas.² Wrigley on his recent tour had reassured restive men of Australia's firm policy that they were serving under Australian conditions, but copies of these temporising replies reached men overseas and, although not specific, implied that men were subject to R.A.F. conditions which did include a set term of overseas service. Almost immediately Overseas Headquarters and the Liaison Office in Cairo received several hundred applications from Australians qualified for repatriation under R.A.F. conditions. Requests from Overseas Headquarters for a definite ruling brought the reply from Melbourne that "such impressions could only be gained by taking statements out of context". This was true enough, but the complete absence of any Australian scheme nine months after a formal high-level declaration had been made that the overseas tour for ground staff should be set at two years had a very bad effect on the men concerned.

The Australian War Cabinet in December 1943 proposed to Great Britain that 100 Australian ground staff should be repatriated each month but that no replacements would be made. This was a most unwelcome suggestion in view of the existing shortage of ground staff, and both this and the concurrent proposal to transfer some E.A.T.S. squadrons from Europe to Australia accorded ill with the agreed general strategy of defeating Germany first, particularly in view of the vital plans already made for 1944.³ No decision had been reached when the original scheme of 100 repatriates per month balanced by 100 men sent from Australia once more came before the War Cabinet on 19th April 1944. Again the matter was deferred although the position then was that of 2,734 men overseas (including headquarters and liaison staffs) 18 were in their fifth, 992 in their fourth, 969 in their third, 516 in their second, and 239 in their first year of service. In May the Air Board prevailed upon the Minister to submit these facts yet again and this time the recommendation of a two-way traffic of 100 men monthly was endorsed by the War Cabinet and forwarded to Mr Curtin who was then in London. At long last on 29th May a cable from London confirmed that Great Britain "gladly agrees to the proposal for the return to Australia of R.A.A.F. ground staffs at the rate of 100 per month on the basis suggested . . ." The time taken to reach this decision robbed it of some of its original value because at the proposed rate it would take ten months to repatriate all those who

² One mother received this letter from the Minister for Air:

Dear Mrs

I refer to your letter . . . in which you desire that your son . . . be returned to Australia. As your son is serving in conjunction with the Royal Air Force the question of his repatriation to Australia is one for the Royal Air Force to determine. Consequently if he desires to return to Australia your son should apply to his Commanding Officer stating fully the reasons for his application. Any such application will receive full consideration having regard to the operational requirements in this theatre of operations at the time. At the present time no arrangements exist whereby members of the Royal Australian Air Force ground staff serving abroad are automatically repatriated to Australia at the end of a specified period of duty. However, the matter is now the subject of discussion between the United Kingdom and Australian Governments and you may be assured that when a decision is made any benefits accruing therefrom will equally apply to all Australians concerned.

³ The Australian Government, although loyally supporting or at least explaining this strategy in public, had never been consulted about it, nor informed until May 1942, and had protested against it.

had already served three years and by that time there would be another 1,000 men with the same qualifying period. However, like the aircrew repatriation scheme it solved the most urgent problem of giving some definite arrangements, and in practice it worked fairly satisfactorily.

CHAPTER 21

THE INVASION OF SICILY

THE decision taken on 19th January at Casablanca that an invasion of Sicily should follow as soon as practicable after final victory in North Africa was at that time judged to be the best method by which the basic Allied strategy of destroying first the European members of the Axis could be implemented. There seemed little chance of gathering in 1943 a force sufficiently large and well equipped to undertake an invasion of northern France, and while shipping and manpower were concentrated in the Mediterranean it was natural to seek there an interim objective which would strengthen the Allied position yet not delay unduly a final concentrated attack against Germany. There were possible alternative campaigns favoured in some quarters against Sardinia and Corsica. Possession of these islands would allow direct attack on the industrial north of Italy, or invasion of southern France, but such campaigns might entail undue retention of forces, especially naval craft which were vital for the over-all plan to invade northern Europe. The Sicily objective, however, was more in keeping with the methodical development of Allied plans. The island forms a natural stepping stone between the tip of Tunisia and the toe of Italy and its capture would not only fulfil the prime objective of re-opening shipping routes through the Mediterranean but would also divert some enemy strength from the Russian theatre. Moreover, the implied threat to Italy could be made real and exploited at any suitable time with a minimum diversion of forces; capture of Sicily was also likely to have favourable reactions in the eastern Mediterranean and there was some hope that Turkey might be encouraged to join the Allies.

In like manner that the concept was strictly methodical, so were the detailed preparations. Force 141,¹ the embryo of 15th Army Group Headquarters, began on 10th February to make precise plans based on the assumption that part of the invading forces would come from the United Kingdom, some would be prepared in Tunisian and some in Middle East ports. At first the target date was set between 10th-14th June on the assumption that Tunisia would be cleared by 30th April, but, as the complexities of training and assembling such an expedition and then launching it with a minimum of risk became apparent, it was finally decided on 13th April to defer the assault for one month, so that it would take place during the favourable July moon period. At this stage the planners could not foretell the extent of Italian exhaustion at the end of the African campaign or the many developments which did much to lighten the eventual task. They had to make ample provision against interference by the Italian navy, however inept it had previously proved itself; stiff opposition was expected from German and Italian submarines (although in fact Grand Admiral Doenitz on 12th May recommended that all available submarines

¹ It took its title from the hotel room in which the first discussions were held.

should be used as cargo carriers between Italy and Sardinia). A cover plan hinting at targets other than Sicily was sedulously fostered but there was small expectation that it would be successful; certainly the hoodwinking of Hitler into vehement belief that Sardinia and southern Greece were the real objectives was a major piece of good fortune. Nor could the Allied planners gauge accurately the degree of disunity among enemy commanders. (In fact Italy refused to accept in May the full assistance which Germany offered for the defence of Italy.) Little was known about German preoccupation with the possibilities of an Italian collapse, or the internal discord which was to lead to the fall of Mussolini but which inhibited clear plans or firm action.

The planners cautiously proceeded on the assumption that it was much easier for the Axis to pour men and supplies into Sicily across the Strait of Messina than for the Allies to transport them by sea. The advantages of terrain were chiefly with the defenders, and there were at least nineteen airfields in three groups (of which two were mutually supporting), all of them at least fifteen miles inland, from which any amphibious force could be heavily attacked. The first essential would be to get as large a force as possible ashore to secure a lodgement against the heavy resistance which was expected. The larger the initial force, however, the greater would be the need of capturing, almost immediately, well-equipped port facilities for supplies and reinforcements so that concentrated counter-attacks should not drive the invaders back into the sea. Accordingly it was assumed that control of both Catania and Palermo was essential and this in turn required two expeditionary forces—one in the east and one in the south-west. It was then apparent that each force might be too weak to drive quickly inland to secure the vital enemy airfields, and for several weeks the alternative risks of becoming pinned down in the south-east, or of assuring initial success there only at the cost of abandoning the Palermo operation and thus prejudicing supply arrangements, were actively debated. At last on 3rd May General Eisenhower became convinced that all resources must be concentrated against south-eastern Sicily and this change of plan was approved by the Combined Chiefs of Staff at the TRIDENT conference on 13th May—the very day that saw complete Allied victory in Tunisia. There was to be no alteration in the date of the assault, so that just over eight weeks remained to complete the plan in detail and put it into operation.

The final outline plan for the Sicilian venture thus envisaged eight almost simultaneous landings along 100 miles of coast between Licata and Syracuse. Two airborne missions, one immediately south of Syracuse and the other behind Gela, were designed to clear the way for the seaborne assaults which were likewise sharply divided into two sectors. The Seventh American Army, which originally was the force intended for use against Palermo, was to drive ashore at Cape Scalabriglia, Scoglitti, Gela and Licata, secure the minor ports and to advance beyond the airfields at Licata, Comiso, Biscari, Gela and Ponte Olivo. On the east coast the

Eighth British Army was to assault in two areas; XIII Corps on beaches immediately south of Cape Murro di Porco and XXX Corps on three sides of Cape Passero. British forces were to consolidate their beach heads, effect a junction with the American right flank and then advance through Syracuse and Augusta towards the airfields in the region of Catania and Gerbini.

Army and naval preparations for this plan, while by no means easy, resolved themselves into the fairly straightforward question of allocation, training and delivery of specific numbers of men and quantities of materials to chosen areas at the correct times. It was more difficult to define precisely in advance what air requirements would be. All the planners agreed that the primary role of the air forces in all phases of the campaign would be to neutralise enemy air power and to protect shipping and the landing areas themselves; the degree of difficulty in attaining this end would govern the availability of air forces for other purposes. To some extent the position was obscured in that air fighting went on unabated despite the conclusion of the Tunisian campaign. Nevertheless Mediterranean Air Command began immediately to re-group and re-apply its forces to the specific requirements of an assault on Sicily. One obviously desirable aim was to strike so hard at enemy airfields, supply bases and operational aids, that by the time the real battle was joined German and Italian aircraft would have been forced back to bases in Sardinia or Italy and thus be able to strike only infrequently and ineffectively. Complementary was the need to establish Allied fighters as far forward as possible, the ideal being that they should be even closer to the beach heads than were the enemy. Mere figures of aircraft available to each side in the general theatre meant very little and it was no protection that against 3,700 Allied aircraft the enemy could muster at most 1,500, for that force if deployed close to the battle could jeopardise the success of an amphibious landing, however strong the covering forces.

Reorganisation naturally affected principally the elements of North-West African Air Forces which would carry the immediate responsibility for first isolating the battle area and then exploiting any opportunities for combined or independent action. In Middle East Command all that would be required would be anti-air and anti-submarine protection for convoys and naval forces and some participation in the elaborate bluff which attracted enemy attention to the Aegean. Hitting power began to flow to the centre of operations, and during May and June the Wellington bombers of No. 205 Group were placed under the operational control of North-West African Strategic Air Force, joining with two existing wings (Nos. 330 and 331)² to form a compact night-bomber force of 180 aircraft centred on Kairouan in Tunisia. Australian representation was small and amounted by July to only 65 aircrew members although it later rose by the end of the year to 150. No. 205 Group was itself only a fraction of the strategic air force which by July could operate 128 Fort-

² 330 Wing formed during May to control the original sqns (Nos. 142 and 150) of Eastern Air Cd. 331 Wing, recently arrived from the UK, had 3 RCAF sqns.

resses, 14 Mitchells and 156 Marauders by day, exclusive of 9th U.S. Bomber Command which remained within Middle East Command but was devoted primarily to support of the Sicilian campaign. 9th Bomber Command took over control of the two British heavy-bomber squadrons (Nos. 178 R.A.F. and 462 R.A.A.F.) when the Wellingtons moved to Kairouan.

During May and June the North-West African Coastal Air Force was also strongly reinforced from sources as widely separated as Great Britain and India so that it would be able not only to defend Allied shipping in the western Mediterranean, but also seek out and destroy enemy shipping plying between the Italian mainland and the major islands. Three night-fighter, one day-fighter, three general-reconnaissance and four torpedo-bomber squadrons were absorbed at this time so that by July a total of 42 squadrons (of which 25 were British including 4 Fleet Air Arm units) were available. Most of these were ungrouped and strung along the coast between Oran and Bone, but at the Sebala airfields, near Tunis, was a British fighter wing and at Protville No. 328 Wing controlled the specialist anti-shipping strike force.

It was in No. 328 Wing that Australian interest was greatest because No. 458 Squadron and 41 out of the 65 Australian individuals serving with N.A.C.A.F. were disposed within it. Even so Australian participation was very small because by this time No. 458 had become a very mixed unit. The Malta detachment began its move to Algeria on 15th May and after three weeks' rest came forward to Protville on 6th June where it was joined by the base party from Amiriya. There were still 60 ground and 40 aircrew attached to No. 38 Squadron R.A.F. and these did not rejoin their parent unit until August. There was a serious shortage of torpedo-trained Australian aircrews in the Middle East, and with the posting of Wing Commander Johnston to the headquarters of No. 328 Wing, this Australian squadron found itself with a South African commanding officer and two British flight commanders. Only 20 per cent of the aircrew and 57 per cent of the ground staff were Australians at this time, and although emphasis was repeatedly placed on securing more Australians, the recovery of the national character, which the unit had possessed before it reached the Middle East, was very difficult in practice, as it had become split up and then changed to a specialist role.

The structure of the Tactical Air Force, with its more easily defined sphere of operations, required less modification. For the projected invasion Desert Air Force was to support British, and XIIth Air Support Command the American ground forces. Both, however, were at this time reduced to formations of fighters, fighter-bombers and reconnaissance aircraft, because both British and American light bombers were grouped together in a tactical bomber force³ which was to support both Seventh American Army and the Eighth British Army as required. The XIIth Air Support Command was purely American in character and there were only 25 Aus-

³ The American light bombers were detached before the end of the Tunisian campaign and then were joined by 3 (SAAF) and 232 Wings from DAF.

tralians in the new Tactical Bomber Force, so that, as with the Coastal Air Force, Australian participation was virtually confined to one portion only of the whole force. Even in Desert Air Force itself the contribution was becoming progressively dwarfed, for apart from one South African and one American fighter wing in which there were no Australians, there were now one reconnaissance and three Spitfire wings in D.A.F., with 45 Australian pilots scattered among the 16 Spitfire squadrons and another 12 in the reconnaissance wing.⁴ In No. 239 Wing of fighter-bombers two of the five squadrons were wholly Australian and there were nine pilots in the other squadrons of this wing. There were also, however, two completely American fighter-bomber groups in D.A.F.⁵

While the Allied air forces were being regrouped functionally, special attention had to be paid to basing them geographically. Malta, whose importance had previously been in connection with war against enemy communication and supply lines, was now required to be the principal base for fighter protection of the eastern invasion beaches. As early as January 1943 tentative approval had been given to improve existing airfields and within the next five months a new fighter operations room capable of handling thirty squadrons was built; the existing radar facilities were improved and the island was stocked with petrol and supplies. After the end of the Tunisian campaign preparations proceeded with great rapidity. The anti-shipping units moved away and at the beginning of June the three Spitfire wings of the D.A.F. replaced them bringing the total of fighter squadrons based on the island up to twenty. Even this was judged insufficient and within three weeks a new landing ground was prepared on Gozo to which American fighter units were quickly moved. Except for three night-fighter squadrons, Malta thus temporarily housed an almost entirely day-fighter force which grew to a strength of approximately 600 aircraft, and in which were sixty Australian pilots.⁶

In the main the work of these pilots during June consisted of familiarising themselves with flying over the sea, providing escort within a radius of 80 miles for bombers of the N.A.S.A.F. and the Ninth Air Force operating against Sicily and Italy, intruder sweeps over Sicilian airfields, and convoy protection. Despite the obvious signs of development at Malta and the presence of many Allied aircraft over Sicily, combats were few. The keynote of the period was not so much what happened in the air, as the relative damage inflicted on Sicilian ground facilities. The enemy was hastily constructing satellite emergency landing strips for all the bombed main airfields and was thought to be holding aircraft in reserve to meet the actual assault.

⁴ This wing played little part in subsequent operations; one of its two sqns transferred in Jul to the newly-organised NA Photographic Reco Wing, and 1437 Flight was disbanded in Oct. This latter unit, commanded from Jun-Oct 1943 by Sqn Ldr Welshman who had originally joined it as a sgt, had lost much of its importance once Africa had been left behind as its Baltimores were no longer suitable for the new conditions. It was re-equipped at this time with Mustangs but within a few months was virtually superfluous.

⁵ An American "group" is the equivalent of a British "wing", likewise a British "group" of an American "wing".

⁶ Fifteen in existing sqns and 45 transferred with DAF wings. It should be noted that as all sqns carried far more pilots than aircraft, the Australian effort was not 10 per cent of the whole.

Even the large fighter aggregation at Malta was considered insufficient to cover all the landing areas, a particular difficulty arising in respect of the more distant ones near Licata, which were also out of effective single-



engined fighter range of Tunisian airfields. Thus on 9th May Eisenhower had already decided to capture Pantelleria, the principal island of the Pelagie group, which lay almost halfway between Cape Bon in Tunisia and the nearest point in Sicily. Not only would this deplete the enemy forward defences and thus lessen the risk of discovery or damage to the assault convoys, but the island could be in turn used for Allied aircraft,

radar and rescue services. Ground and naval forces were quickly prepared to undertake this preliminary task (Operation CORKSCREW) but it is chiefly notable as the first Allied experiment in gaining enemy territory essentially by air action. On 18th May light bombers and fighter-bombers began repetitive attacks against the port area and Marghana airfield while the heavy bombers attacked airfields in Sicily, Sardinia and southern Italy to prevent enemy interference. On 1st June Fortresses joined in the assault on the island itself and for almost a week the coastal gun defences were the main target. Finally on 6th June a continuous day-and-night attack began and twice the island was offered the choice of surrendering before the 1st British Division was embarked at Sousse and Sfax during the night of 10th-11th June to rendezvous with a naval force off Pantelleria at daybreak. All through this night the air bombardment continued and in effect all resistance had ceased on Pantelleria when ground troops went ashore just before noon on the 11th. In all some 5,285 sorties had been flown against Pantelleria and 6,200 tons of bombs dropped for the loss of only 14 aircraft with another 16 substantially damaged. This lavish use of air striking power was justified in the light of the urgent necessity to control Pantelleria quickly. In the event little enemy air resistance was encountered and the apparently dazzling success encouraged false hopes of the efficacy of bombing in other circumstances. Lampedusa, an adjoining island with minor airfield and radar installations, likewise fell into Allied hands by 13th June after the medium-bomber and fighter-bomber attack had been switched against it as soon as Pantelleria fell. Linosa and Lampione, the remaining islands of the Pelagie group, surrendered to British naval units without resistance or the need for assault. In the month which followed before the invasion of Sicily, Pantelleria and Lampedusa were quickly restored to military usefulness and by 26th June an American fighter group was firmly installed at Marghana. Some of the pressure was thus removed from Malta and Allied fighter domination of the Sicilian Narrows seemed assured.

Pantelleria, however, was only one episode in the general plan to soften enemy air defences. Throughout the remainder of June both strategic and tactical elements of North-West African Air Forces struck continuously at enemy airfields in Sicily and Sardinia which had an estimated capacity roughly equal to the Allied bases at Malta and Pantelleria. The aim was to diminish this capacity and if possible to drive enemy aircraft back to mainland airfields. Thus throughout June the western group of Sicilian airfields—Castelvetrano, Sciacca, Milo and Bocco di Falco—were attacked and early in July the bombers were directed against the eastern group which would most seriously threaten the invading forces. Here reconnaissance had shown an additional sixty enemy fighters in position by 1st July, but after thirty-five attacks during which some 1,320 tons of bombs were dropped, Gerbini and seven of its satellites, as well as Comiso, were considered unserviceable and other airfields, although not put out of action, were likely to sustain only a fraction of their theoretic fighter forces. During the same period over 2,000 tons of bombs were dropped

against Axis communication and supply targets in the Naples area, in Sardinia and most importantly at Messina, the vital enemy supply link for Sicily itself.

Australian aircrew, thinly spread among bomber squadrons, were making only a minute contribution to this preparatory phase of bombardment although a few individuals such as Flight Lieutenant Vincent⁷ of No. 150 and Flying Officer Dolden⁸ of No. 40 Squadron were consistently prominent in night Wellington attacks. The Australian squadrons of the Desert Air Force were virtually inactive. Alone among the forces earmarked for the assault itself, the fighter-bomber wings could not be employed during the preparatory period as there were no airfields from which they could operate effectively. No. 239 Wing moved to Zuara near Tripoli after a single operation on 17th May when the Australian squadrons provided 24 aircraft to escort a convoy safely past Cape Bon. At Zuara a severe ground-training program commenced on 26th May to prepare the airmen for any emergency the new campaign might bring and the two commanding officers, Squadron Leaders Bartle (No. 450) and Eaton (No. 3)⁹ attended a special course in Cairo. All vehicles were waterproofed and each squadron was divided into four servicing parties, two of which were dispatched to Malta on 3rd July. The intention was that the fighter-bombers should be at a peak of readiness and would operate from Malta when airfields were vacated by the Spitfires as they moved to captured Sicilian airfields. As soon as the skeleton maintenance crews were established at Malta the organisation was tested on 6th July by Bartle who led eleven Kittyhawks to Malta, refuelled, raided Biscari and returned via Malta to Zuara. Finally on 9th July, immediately preceding the seaborne invasion, the aircraft of Nos. 3 R.A.A.F., 112 and 250 Squadrons moved to waiting stations on Malta to be joined four days later by those of Nos. 450 R.A.A.F. and 260 Squadrons. All D.A.F. units were to be controlled by Air Headquarters Malta as they staged through the island, reverting to their own headquarters once it should be firmly established ashore in Sicily. For over-all control of the air operations Air Chief Marshal Tedder established a command post at La Marsa just outside Tunis, no more than ten-minutes' journey from General Alexander's headquarters.

These intense air preparations in the central Mediterranean had proceeded without serious opposition from the enemy and everything was in readiness by the end of the first week of July. Meanwhile along both flanks more purely defensive operations had proceeded with equal success. Axis bombers attempted night attacks against congested ports in the western Mediterranean but failed to sink any ships; in daylight there were occasional raids against convoys but these were so heavily escorted that

⁷ W Cdr N. F. Vincent, DFC, 411832. 75 Sqn RAF, 460 Sqn, 150 Sqn RAF; comd 464 Sqn 1945. Station owner; of Cassilis, NSW; b. Randwick, NSW, 7 Apr 1907.

⁸ F-Lt R. Dolden, DFC, 412234; 40 Sqn RAF. Branch manager; of Cronulla, NSW; b. Bexley, NSW, 13 Dec 1914.

⁹ Gp Capt B. A. Eaton, DSO, DFC, 133. Comd 3 Sqn 1943, 239 Wing RAF 1944-45. Regular air force offr; b. Launceston, Tas, 15 Dec 1916. Eaton had taken over command of No. 3 from Sqn Ldr Gibbes on 21 Apr.

few of the attackers ever got within striking distance. During the first nine days of July, the critical period of shipping concentration, N.A.C.A.F. flew over 1,400 sorties on convoy escort alone. In this area, however, Australian activity was at a very low ebb until 18th June when No. 458 recommenced operations. The general aim of No. 328 Wing was to watch the Italian fleet, harass shipping and hamper any seawise reinforcement of Sardinia and Sicily, but during their patrols the Wellingtons had only one opportunity to attack and that on the first night of operations when a torpedo hit was claimed on a tanker north of Sicily. The eight Australian pilots of No. 14 Squadron R.A.F. flew twenty-nine day patrols during June but apart from their deterrent value these had no result.

In the eastern Mediterranean Australians were both more numerous and more active. From Gambut the Baltimores of No. 454 continued during May and June to conduct offensive sweeps in the Aegean, harassing the small ships used by the enemy to supply his island garrisons. Several small caiques were sunk and others damaged, while the flights had additional value as reconnaissances and in spreading enemy air defences as widely as possible. On several occasions the Baltimores were intercepted by fighters but at this time more than held their own in fleeting encounters. An increasing number of convoy-escort duties naturally fell to the squadron from mid-June onwards, although sweeps to ensure that E-boats believed to be based on Crete would not interfere with the HUSKY convoys sometimes took precedence over close escort. No. 459 Squadron was also nominally based at Gambut but owing to a dearth of aircraft suitable for night convoy escort, its Hudsons operated frequently during May and June from Nicosia (Cyprus), Berca (Cyrenaica), St Jean and Lydda (Palestine). During May, 608 hours were spent on escort duties, ten Hudsons being airborne on a single night (27th-28th May) to cover an important convoy. This effort was eclipsed in June when despite the withdrawal of several experienced crews, 906 hours were flown on 151 sorties to guard the ever-increasing flow of shipping as the invasion fleet gathered. No ships were lost under the vigilant eyes of the Hudson crews and it was therefore all the more stimulating when, on 16th June, Flight Sergeant Barnard¹ sank a U-boat. He had left Lydda just after noon to cooperate with naval vessels in hunting a U-boat which had previously torpedoed a ship near Haifa. He could not find the naval ships at the appointed rendezvous and therefore climbed up into scattered cloud and began an independent patrol. After two hours his patience and skilful technique were rewarded by the discovery of an unwary U-boat cruising slowly north-westward with members of its crew apparently sunbathing on deck. Barnard immediately dived and attacked at extremely low level from dead astern, one depth-charge falling on the U-boat and two others exploding alongside. Less than five minutes later U97 sank stern first, but unfortunately the contact explosion following the "dry hit" had thrown the Hudson 400 feet up into the air and had severely bent and damaged

¹ F-O D. T. Barnard, DFM, 401634; 459 Sqn. Clerk; of E Camberwell, Vic; b. Launceston, Tas, 19 Mar 1920.

its mainplanes, fuselage and rudder. Equally as meritorious as the classic surprise attack on *U97* was the skill with which Barnard succeeded in flying his now unstable aircraft safely back to Haifa.

The remaining weeks of June brought no fresh incident for No. 459 but early in July the aircrews felt a new quickening of interest because of the nature and composition of the convoys which began to stream westward. The battleships *Valiant* and *Warspite* in company with the aircraft carrier *Formidable* were at sea and the large number of troop-carrying ships and assault craft in these convoys heralded big events, even had the presence of an unusual number of hospital ships gone unnoticed. The crews were informed that no effort was to be spared to ensure the safety of these convoys, but it was not until after the landings had been made that the exact destination was known. The unit diarist then comments:

The Squadron played a somewhat inconspicuous part in all this, even if the safe passage of the invasion force is an all-important thing. At least we can say that there was not one failure or undue incident in our unremitting watch, and but one ship was lost through enemy action, and that outside our area of responsibility.

Equally uneventful were the fighter patrols made by No. 451 from Idku for the defence of the vast mass of shipping associated with the training and fitting out of the invasion convoys. The Australians made no contact at all with enemy aircraft and even the three Spitfires held for interception of enemy high-flying reconnaissance aircraft had no success. Similar negative patrols were made throughout the period by some twenty Australian fighter pilots in other squadrons of Air Defence Eastern Mediterranean, which was by this time largely a transit command in which squadrons paused to re-arm and gain experience before proceeding to more active theatres.

On looking back it appears that much advantage could have been gained at this time by an exchange between Nos. 450 and 451 Squadrons. The ground crews of No. 450 had been engaged since February 1942 on continuous operations with frequent moves, minimum living conditions, and no regular leave arrangements. Some men were obviously tiring and general health was declining. On the other hand the ground staff of No. 451 badly needed the stimulus of personal participation in the major struggle. Group Captain Duncan advocated an exchange of some members of each squadron, but shipping difficulties and the general emphasis on more vital preparations for Sicily prevented it at this stage. A complete exchange was impracticable as No. 451 was not ready to replace No. 450 as an experienced member of the close-knit fighter-bomber team of the Desert Air Force. This need not have been so, but for the slow decisions reached concerning any change of role of the *Article XV* squadrons, and it was not until 15th June that No. 451 became a normal fighter squadron, finally shedding its anachronistic character as an army-cooperation unit which had for some time kept it away from the front line. On a different score, much concern was felt at this time concerning No. 462 Squadron R.A.A.F. which now passed under the operational command of the American Ninth

Air Force. The manifest difficulty of providing a truly-Australian complement for this unit had led Duncan early in the year to advise Overseas Headquarters to abandon the attempt. Desultory conversations in London proceeded while Duncan combed the Middle East for ground staff, but even by misemploying tradesmen (for example fitters as flight mechanics) it was possible to find fewer than one-third of the 450 men required, and this latter practice was rather unfair both to the individual and the command. Towards the end of June Duncan was again officially advising Overseas Headquarters and Headquarters R.A.F. Middle East that it would be better for the Halifax squadron to revert to the Royal Air Force² and for the number plate of No. 462 to be given to a light twin-engined squadron for which Australians could more easily be provided. This plan would then give three Australian fighter and three general-reconnaissance squadrons in the Middle East, which if concentrated would largely solve the administrative problem. The time was not ripe for action, however, and H.Q. R.A.F. M.E., although expressing sympathetic consideration, ruled that in view of the forthcoming operations in Sicily, the matter should be reviewed after a lapse of two months.

When the Seventh American Army and the Eighth British Army finally arrived off the south-eastern corner of Sicily early on 10th July, the fruits of this vast integrated air plan were found to be even greater than had been hoped. North-West African Air Forces had largely neutralised the Sicilian airfields, from which Axis bombers had withdrawn, and had seriously impaired the enemy's communications and reinforcement facilities for the island. Even the Axis fighters which remained dispersed on improvised landing fields made little attempt at reconnaissance, so that Malta-based fighters which took over escort responsibility for the assault convoys at noon on 9th July had a completely uneventful day. Eisenhower, who had expected to lose all element of surprise at latest by the morning of 9th July, spent the day at the fighter control room at Malta watching for signs of enemy reconnaissance, but it was not until 7.30 p.m. when the vast congregation of almost 2,000 vessels, which were to take part in the initial landings, was nearing the island that even a solitary enemy plane was in a position to report them.

Air support for the landings was lavish; heavy, medium and light bombers attacked targets immediately behind the beaches, created diversions and bombed nodal points leading to the threatened areas. In one respect, however, the preliminary airborne landings upon which so much emphasis was placed, the plan went astray and in other general circumstances might have prejudiced success. The final plan, arrived at without previous experience in mounting a complex and large-scale operation of this type, called for two glider-borne landings south and west of Syracuse late on 9th July followed around midnight by parachute landings 4 miles inland and 6 miles from Gela. No. 296 Squadron R.A.F. had arrived

² He pointed out that under the new JATP Agreement fully 75 per cent of the sqn personnel must be attached to the RAAF because they were not Australians.

from Great Britain during May and began cooperative training with the American No. 51 Troop-Carrier Wing whose Waco (Hadrian) gliders were to form the main force for the eastern zone. Beginning on 3rd June the Halifax flight of No. 295 Squadron R.A.F. also began to ferry out Horsa gliders from the United Kingdom, and 27 had reached Tunisia by 7th July although only 19 were ready for the initial operation. Some concern was felt in advance that British glider pilots who were to transport the 1st Air Landing Brigade to Syracuse were out of practice and found the Waco somewhat more difficult to fly than their own training gliders. Moreover, a massed glider landing by night had not hitherto been attempted and the time and facilities available in North Africa did not allow exercises which would reasonably simulate the conditions of the contemplated operation. Even the timing of the landing caused some anxiety because it could not precede the seaborne assault by too great a margin and had to be a compromise "between the irreconcilable demands of the navy for darkness and of the airborne force for light".

The glider operation when it actually began shortly after 6 p.m. on 9th July was further hampered by unexpectedly high winds, so that many navigators missed the first turning point at Malta and the timing of the operation was upset. Approximately 120 of the 137 tow planes did reach the general release area, but because of inexperience the majority of gliders were cast off too far from shore and over 50 landed in the sea. Of those that successfully made land some crashed and the rest were scattered over an area roughly 7 miles by 2 miles along the coast. Elements from different units consisting of 8 officers and 65 other ranks did, however, reach the vital canal bridge which was the target for the whole operation and this small group hung grimly on, although surrounded, until 3.30 p.m. the following day and even though then forced to withdraw the enemy had insufficient time to destroy the bridge before patrols of the seaborne force arrived to capture it intact. Troops from the other gliders also showed great enterprise in attacking every Italian post they encountered and thus added to the confusion behind the beach defences at the time of the main assault. A similar wide dispersion occurred of the American paratroops dropped around Gela but again the comparatively small number which reached the correct rallying point were able, by aggressive action in the face of an uncertain defence, to control the road junction and high ground which was their objective.

This initial failure retrieved by individual audacity began an astounding night during which the seaborne landings were made almost exactly as planned. Opposition was slight and the coastal defences were manned by mainly dispirited Italians who surrendered readily so that within twenty-four hours Syracuse, Licata and the airfields at Pachino and Licata were in Allied hands. Augusta fell on 12th July, and by the following day the remaining airfields in the south-east of the island had been occupied. Some 80,000 men, 7,000 vehicles, 300 tanks and 900 guns were safely ashore within two days, and as supply arrangements switched rapidly from beaches to fairly well-equipped ports, the all-important lodgement period

had been successfully sustained. Most remarkable was the virtual absence of enemy air opposition in the early stages so that the meticulous defensive plan drawn up to support the invasion shipping was hardly put to a real test. Over the beachheads Spitfires maintained regular patrols from dawn on 10th July, at first in formations of 12, though these were soon reduced to 8, then to 4 aircraft, and had been entirely discontinued over some beaches by 13th July. The 1,200 fighter sorties made on 10th July from Malta, Gozo and Pantelleria met negligible opposition, and although Axis day effort increased during the following two days it then declined once more as the enemy was forced back to bases on the Italian mainland.

This anticlimax was far from welcome to the Australian and other fighter pilots who had nourished hopes of annihilating, in the air, *Luftwaffe* forces drawn by the tempting target of the vast invasion fleet lying offshore. On 11th July the diarist of No. 601 Squadron R.A.F. bemoans the fact that only six enemy aircraft were seen and on the same day two Australians from No. 43 could evidently leave their formation with safety to chase a lone Me-109 for 50 miles. Almost the only combat of note occurred in the Cape Passero-Syracuse sector where seven Spitfires of No. 111 claimed four enemy aircraft shot down, Sergeant Eccleston³ being credited with two. On the following day Sergeant Clarkson⁴ of No. 72 destroyed an Me-109 and just before dawn on 13th July Flying Officer McIntosh⁵ of No. 111 shot down one of six Ju-88's discovered over Augusta and silhouetted against a faintly-lit eastern sky. By this time enemy bombing attacks were almost entirely under cover of darkness and the Spitfires had little to do over the beaches. Only one further Australian success in day fighting is recorded when on 17th July Sergeant Connolly⁶ and another pilot of No. 72 claimed that they had shot down two Me-109's which were apparently attempting a reconnaissance between Catania and Augusta.

There were few Australians with the night-fighter squadrons but they had a much greater opportunity for personal success because the enemy was virtually forced to attack only at night. Flight Lieutenant Cowper⁷ of No. 108 destroyed a Ju-88 on 11th-12th July east of Syracuse. He had pressed in so close that his Beaufighter was damaged by the disintegrating enemy plane and Cowper was forced to bale out over the sea. He was rescued by a hospital ship and taken to Tripoli but was back with his squadron by 14th July, in action five nights later, and on 21st-22nd July claimed another victim, this time a Ju-52. Flight Lieutenant Davidson,⁸

³ P-O H. S. Eccleston, DFM, 412412. 111 Sqn RAF, 79 Sqn. Grazier; of Cooma, NSW; b. Cooma, 24 Aug 1920.

⁴ F-O K. E. Clarkson, DFM, 408969. 611 and 72 Sqns RAF. Cost accountant; of Essendon, Vic; b. Albert Park, Vic, 27 Aug 1922. As Lt (A), RAN, killed in action, Korea, 5 Nov 1951.

⁵ F-Lt L. McIntosh, DFC, 403596. 122 and 111 Sqns RAF. School teacher; of Crows Nest, NSW; b. Manly, NSW, 7 Jan 1919.

⁶ F-Lt J. T. Connolly, DFC, 413170. 72 Sqn RAF, 453 Sqn. Stock and station agent; of Boggabri, NSW; b. Tamworth, NSW, 2 Mar 1920.

⁷ Sqn Ldr R. B. Cowper, DFC, 407666. 153, 89 and 108 Sqns RAF, 456 Sqn. Draftsman; of Malvern, SA; b. Broken Hill, NSW, 24 Jun 1922.

⁸ F-Lt H. J. Davidson, DFC, 411444; 256 Sqn RAF. Industrial chemist; of Comboyne, Wingham, NSW; b. Wagga, NSW, 30 Aug 1912.

a radar-navigator teamed with a British pilot (Squadron Leader Allan⁹) of No. 256 Squadron R.A.F. achieved phenomenal success during this phase. Allan had reached Malta on 4th July leading a detachment of six Mosquito night fighters, and once again this thorough insurance against all risks was well repaid because during a single sortie on 15th July Allan and Davidson claimed five enemy aircraft (4 Ju-88's and a tri-motor Cant Z 1007) out of a force of thirty attacking Syracuse. This highly-skilled and offensively-minded team were credited with the destruction of a further nine enemy bombers during the Sicilian campaign, and although on several occasions their own aircraft was damaged, returning twice with one engine out of action, the superiority of the Mosquito night fighter had a marked influence in depressing the *Luftwaffe* effort. The real measure of the Allied air defence lay in the somewhat remarkable fact that whereas planning had envisaged the loss of up to 30 per cent of the invading fleet, in the event only 12 out of some 2,000 vessels were sunk or damaged.

The first thrust of the Allied invasion overran the network of airfields radiating from Pachino, and as soon as these were patched up, No. 244 Wing began to transfer there from Malta on 13th July. In turn the fighter-bombers of No. 239 Wing could then operate from Malta in close support of XIII Corps. In conformity with the general plan that it was essential to retard enemy movements until the invaders were ashore in strength and their full logistic support assured, most of the 108 sorties flown by Nos. 3 and 450 Squadrons before 17th July were directed against traffic on roads behind the fighting line. The only exceptions were raids against a troublesome gun emplacement on 12th July, and against railway yards at Carlentini and Catenanouva on the 13th and 16th respectively. As a rule the formations sent out on these interdiction duties consisted of two squadrons of Kittyhawks, each aircraft carrying two x 250-lb bombs, with an escort section of Spitfires. Enemy fighters still sometimes managed to elude this top cover and No. 3 Squadron lost an aircraft on 13th July and again on the 15th, although both pilots, befriended by Sicilian peasants, soon rejoined their unit.

Although with ever-increasing air superiority the land campaign in general went well during the first few days, there were some moments of anxiety when German troops began determined counter-attacks against the Seventh Army. In an attempt to help troops hard pressed by the enemy near Gela, a third major airborne operation was hurriedly organised on 11th July but this ended disastrously. Again navigation and timing along the route was poor, and because all units had not been warned to preserve a safety corridor for the aircraft, anti-aircraft gunners both afloat and ashore fired in the mistaken belief that enemy planes were approaching. Twenty-three of the 144 transports were shot down and more than half of the others were badly damaged, many abandoning the attempt to drop their parachutists. Even the men who were dropped were very badly dispersed and their losses were in excess of any real damage inflicted on the

⁹ Sqn Ldr J. W. Allan, DSO, DFC, RAF; 256 Sqn RAF. Of Epping, Essex, Eng; b. Cathcart, Glasgow, Scot, 1918.

enemy. The same poor organisation marred the final airborne operation on 13th-14th July, this time a parachutist landing accompanied by 17 gliders to secure a bridge over the River Simeto, which controlled the exits from the high ground into the Catania plain in the British sector. Bad navigation and unwillingness to face the often indiscriminate fire from ship and shore disrupted the plan, 27 aircraft returning early to base, while 10 transports and 2 tow aircraft were shot down. Nevertheless 56 of the transports dropped their parachutists on or near the chosen zones, and six gliders also reached the bridge area although two crashed on landing. Approximately 200 troops and 5 anti-tank guns went into action immediately against the bridge, captured it intact and removed the demolition charges. This group, reinforced by other parachutists, held on to the bridge and the high ground to the south throughout 14th July and early the next morning elements of XIII Corps reached the position.

Only eight Australians were with the No. 38 Group detachment which itself played a minor part in these airborne operations. Three of these were in a crew captained by Flying Officer Kemmis¹ which took part in both the operations mounted in the British sector. Kemmis later reported "from our own point of view the first night was easy. We just stooged along the coast and cast the gliders off south of Syracuse, then came back without trouble". On the second occasion when he carried parachutists "... it was a lovely moonlight night. We could just see a wisp of smoke coming out of Etna as we flew over, low, very slow, and straight and level. The ground guns opened up and we got shot up a little; then we got chased around the sky by an Italian fighter but he wasn't very good or very keen. We got away with just a few holes, landed our troops, and got back to the coast. We ran out of petrol as we reached Cape Bon and landed on an airfield there".

By 17th July the German divisions in Sicily (the *Hermann Goering* and the *15th Panzer Grenadiers*) had abandoned attempts to drive the Seventh Army back into the sea and had transferred to positions opposite the Eighth Army. Axis forces thus practically abandoned the western part of the island in favour of concentrating all their strength in the north-east to protect the Catania airfields and the line of retreat through Messina. Thus, while General Patton executed the brilliant military promenade which was to capture Palermo on 22nd July and to threaten the enemy from the rear by the end of the month, XIII Corps experienced great difficulty in its attempt to drive northwards across the heavily-defended Simeto River. It now needed urgently not only the general protection of fighters and the remorseless bombardment of enemy rear areas which had gone on continuously, but also close air support in the battle area itself. Accordingly on 16th July two serviceicing parties from each squadron of No. 239 Wing moved from Malta to Pachino airfield and on the following day the Kittyhawks flew over and were almost immediately ready for action. Pachino itself was a low-lying and rather unhealthy locality but

¹ Sqn Ldr V. D. Kemmis, 403594, 296, 295 and 570 Sqns RAF, 38 Sqn. Bank clerk; of Sydney; b. Gulgandra, NSW, 15 Sep 1914.

there were some compensations. The camps were situated among vineyards and olive groves and the abundance of fresh fruit, vegetables, tomatoes and eggs formed a much appreciated supplement to normal rations. After the years spent in Africa the Australians were delighted to find five wells nearby with ample water for washing and cooking.

For four days the Australian Kittyhawks attacked targets of opportunity on the roads north of Catania but were unable even to blunt the stubborn enemy defence. There were also specific requests for attacks, as on the 20th when Nos. 3 and 112 bombed an enemy strongpoint between Catania airfield and Misterbianco. This attack was successful, the army immediately signalling its appreciation, but within an hour XIII Corps was forced to request a second strike in the same area, this time to repel an enemy counter-attack. This pitched battle along the Simeto did, however, enable XXX Corps to press forward in a wide out-flanking movement which captured Leonforte on 21st July. This left the enemy in control of only two main highways running west from Messina and accordingly for the next three days Australian Kittyhawks gave almost undivided attention to vehicles travelling eastward along the more southerly of these, the road between Nicosia and Randazzo. Then on 24th July the fighter-bombers switched their attack to the network of roads circling Mt Etna, bombing and strafing ahead of XXX Corps which had turned east and was advancing against Agira. After three days of these patrols, Nos. 3 and 260 assisted directly in the capture of a formidable strong-point guarding one of the approaches to the town. The enemy positions were cleverly camouflaged against recognition from the air, but once the target had been indicated by artillery smoke shells, all except two of forty-eight bombs dropped fell in the target area. As the last bombs fell the 1st Canadian Division stormed the defences to complete an excellently coordinated manoeuvre. Three similar attacks were made on strong-points near Catenanouva through which 78th Division attacked towards Centuripe on 29th July. Then with the Seventh Army, its task in western Sicily completed, pushing eastwards, No. 239 Wing returned to its former task of harassing traffic along the Randazzo highway.

Targets for fighter-bombers were becoming increasingly scarce, so to extend the time actually spent over enemy-held areas, the Kittyhawk squadrons advanced on 1st August from Pachino in the far south to Agnone, a coastal airfield 15 miles south of Catania. From this base the Australian squadrons alone mounted 190 sorties during the next four days and as the formations rarely exceeded a strength of four aircraft, the Kittyhawks were able to maintain almost complete daylight patrol over roads on both sides of Etna in the immediate rear of the Axis positions. On the ground progress was steady; the Seventh Army was advancing on Troina, Centuripe had fallen, and the Etna system was on the point of collapse. On 5th August the enemy finally evacuated the Catania positions which had resisted all efforts to break them by direct assault. Nevertheless the effectiveness of the fighter-bomber effort was difficult to judge because on some occasions no targets at all could be found; often it was necessary to roam

far afield with poor rewards, and sometimes alternative targets such as coastal jetties were attacked. The lush vegetation of northern Sicily, contrasting sharply with previous experience in the bare desert wastes, gave excellent cover to enemy vehicles, although there were obvious signs that only limited movements were attempted by day.² The Kittyhawks were at times required to fly very low to investigate wayside coppices and plantations, but although stationary vehicles were often discovered by this means, the danger from ground gun fire was too great for these to be adopted as standard tactics. In the absence of general air opposition the light mobile guns with which the Germans were liberally equipped were indeed the only real hazard which the Kittyhawks had to face. Eight Australians were shot down but all except three managed to regain friendly territory. The risks of this close-support activity were very real, but they failed to deter pilots from attempting to exert the greatest possible pressure on enemy movements. In all during the five weeks they operated over Sicily Nos. 3 and 450 claimed as destroyed or damaged some 300 enemy vehicles, but this figure is hard to substantiate when checked against all claims and final estimates of enemy losses. The threat of attack which kept traffic off the roads rather than damage inflicted during actual attacks was the real measure of the fighter-bombers' success.

One of the rescued Australian pilots had been forced to bale out over the sea on 3rd August after an early-morning attack on road traffic east of Etna. On receipt of this news Squadron Leader Stevens³ (who had succeeded Eaton in command of No. 3 when the latter fell ill) immediately set out and dropped a dinghy to the distressed pilot. He returned again shortly afterwards with an air-sea rescue amphibian, but when this alighted on the sea a gun on shore began to fire at it. Stevens made a wide circuit of the position and then attacked from low altitude to silence the gun post while the rescue proceeded undisturbed. Although his Kittyhawk also was damaged by return fire, Stevens managed to crash-land at Cape Campoloto, and rejoined his squadron later the same day.

By this time Italian will to resist was noticeably weak and it was only the tenacity and skill of the few incomplete German divisions in Sicily, using every advantage of terrain to bar the methodical Allied advance, which prevented the complete collapse of Sicily. The strategic air forces had already been switched to mainland targets as from mid-July and after a heavy raid against Naples on 17th July, almost the entire strength of N.A.S.A.F. and Ninth Air Force was directed against Rome on the 19th. This latter raid had large military but even greater political significance. Within a week came the forced resignation of Mussolini and the complete eclipse of the Fascist junta which radically affected the strategic balance throughout the Mediterranean. Hitler and the German High Command had little doubt that this was merely a prelude to peace overtures by the

² "At present only night traffic is possible since fighter-bombers are a serious threat by day"—Chief of Staff, German Naval Command Italy, to Doenitz 4 Aug. (*Fuehrer Conferences on Naval Affairs* 1943, p. 76.)

³ Sqn Ldr R. N. B. Stevens, DFC, 404672. 457 Sqn; comd 3 and 451 Sqns 1943. Civil servant; of Pt Moresby, New Guinea; b. Sydney, 9 Sep 1917.

new moderate Italian government. They began to prepare plans to send additional German troops to Italy and the Balkans so that these should not fall like ripe fruit into Allied hands. On the question of Sicily Hitler's advisers were divided, Grand Admiral Doenitz and Field Marshal Rommel considered that it should be held at all costs, while General Jodl and Field Marshal Kesselring favoured a general withdrawal up the Italian peninsula to a more easily-defended position.⁴ The stubborn German defence in north-east Sicily thus continued but with the fall of Catania on 5th August it became clear that it was a major rearguard action to cover a general evacuation rather than a pitched battle to retain territory. Accordingly the heavy bombers again turned to Sicilian targets and struck repeatedly at Messina. The fighter-bombers also abandoned targets near the battleground and patrolled the roads leading to the port or swept over the narrow Strait of Messina to make any daylight evacuation as difficult as possible. Until 9th August the Australians patrolled mainly between Melazzo and Messina but on that day they bombed a ship near Melito on the extreme toe of Italy.

During the following week when craft of all descriptions were ferrying German troops and equipment to the mainland, the Australians regularly visited the beaches and minor ports of Calabria between Melito and Gioia. The enemy made little attempt to use the air transport service which in attack and retreat had been a notable feature of their previous campaigns,⁵ and preferred instead a systematic withdrawal by sea, the larger units and more important equipment being sent under cover of night. The Kittyhawks appeared from the start to achieve good results against minor shipping, No. 3 Squadron during its second sweep on 5th August finding a tempting target of two small ships, eight barges and a large seaplane in Melazzo harbour. These craft were bombed from an altitude of 4,000 feet and direct hits were claimed on both ships, several barges and the seaplane. Again at dawn on the 9th pilots of No. 3 attacked and drove ashore a large landing craft putting out from Melito. Between these two successes the Kittyhawks were employed mainly to hamper the enemy retreat northwards on both sides of Mt Etna, attacking the Bronte-Randazzo road twice on 7th August, and marshalling yards at Giarre and a road convoy at Teresa on the following day. Both Australian squadrons continued with similar patrols throughout the next few days, of outstanding interest being a request from the Eighth Army to bomb a troublesome strong-point blocking the advance on Maletto. As at Agira this objective was taken by ground troops without difficulty immediately after the air attack.

⁴ *Fuehrer Conferences on Naval Affairs 1943*, pp. 71-87. Kesselring was out of favour at this time as he was thought to be unduly sympathetic to and trustful of the Italians. It is interesting that once Sicily had fallen Rommel wished to retire to a line between Turin and the Gulf of Venice and it was Kesselring who, with scanty forces, acted energetically and maintained control of the greater part of the Italian mainland.

⁵ On 25 Jul aircraft of 322 Wing had intercepted a formation of Ju-52's near Melazzo and had claimed the destruction of 25 transports.

Although the narrowing enemy escape corridor was protected by "probably the most concentrated anti-aircraft protection yet encountered"⁶ the Australians lost only one pilot on these duties before 12th August when attention turned once more primarily against seaborne traffic. That very night, however, the airfield at Agnone was raided by Ju-88's carrying high-explosive, anti-personnel and incendiary bombs. The assault lasted an hour and but for the recent removal for health reasons of the R.A.A.F. living quarters to a site on high ground, casualties would have been heavy. As it was only one man was injured, but eighteen Kittyhawks were damaged. By prompt repair work it was possible to fly twenty-two sorties on the following day. A second surprise came on 14th August when for the first time in some weeks a patrol of twelve R.A.A.F. Kittyhawks was attacked by six Mc-202's. One enemy fighter was destroyed and three others damaged without loss and these fluttering revivals of enemy air effort did nothing to impede Allied concentration against targets in Sicily, the Strait or on the mainland itself. The Australians had a particularly busy day on 15th August flying a total of 70 sorties without loss. At Bova Marina the Kittyhawks bombed 300 trucks standing in their railway yards, sank two barges and attacked other rail sidings in Sicily and Italy. The pace slackened somewhat on the next day but on 17th August, during the last few hours of the campaign ten motor vehicles were destroyed near Cape Peloro and attacks on barges continued until the last evacuees reached Calabria.

Overwhelming Allied air superiority, both in numbers and principles of operation, facilitated the ease with which Sicily was conquered in the short space of 38 days. Strategic bombing had crushed and exiled the *Luftwaffe* to distant bases and an unremitting assault continued on enemy bases and communications in Italy. Allied fighters had proved far more than sufficient to prevent other than sporadic ill-executed counter-attacks by night. The Coastal Air Force had successfully countered any threat from enemy air, surface or underwater forces against Allied assault or supply shipping while at the same time striking hard at German and Italian seaborne reinforcements. Air power thus gave the Allies initiative, freedom of action and immense logistical superiority but, despite some success, direct intervention in the ground battle was comparatively less effective. In general the effect of ground-attack aircraft on front-line troops had waned considerably since the early days of the war when dive bombers had earned a terrifying reputation. Certainly seasoned German troops, no longer expecting the luxury of cooperation or even defence from the *Luftwaffe*, had learned from experience how to disperse and camouflage their equipment and defensive positions so as to give least opportunity to the ever-growing Allied air assault. The work of No. 239 Wing though less spectacularly successful in terms of direct results, now entered a phase of indirect pressure to keep the enemy at this tactical disadvantage.⁷

⁶ Dwight D. Eisenhower's dispatch on the Sicilian Campaign.

⁷ Post-war German comment by high-ranking officers, although perhaps not entirely free from *arrière pensée*, again suggests that Allied tactics were too pedestrian:

"In the Sicilian campaign the Germans could not understand why the Allies did not seize the

While Nos. 3 and 450 were engaging in the ground battle, No. 458 during July 1943 flew 1,016 operational hours in 134 sorties on anti-shipping patrols and strikes around Sardinia and in the Tyrrhenian Sea. An Italian cruiser was damaged and another torpedo fired at a destroyer on 10th-11th July, and four nights later a large merchant ship was sunk and one of its escorting destroyers damaged by torpedoes from Wellingtons of No. 458 diverted from individual patrols after this convoy had been located by an aircraft of No. 221 Squadron. Another merchant ship sheltering in a bay on the north-west coast of Elba was torpedoed on 22nd-23rd July. These attacks were made against strong anti-aircraft fire, and from all causes four R.A.A.F. Wellingtons failed to return. Two more crews were lost during the first week of August, the sole surviving member of one, Sergeant Watson,⁸ eventually being rescued at sea on 12th August after eight days adrift during which time he displayed considerable courage and endurance in circumstances where there seemed little hope of survival. The air stranglehold on enemy movements in the western Mediterranean was maintained throughout August and the Wellingtons extended their action to the Ligurian Sea where on 16th-17th August a ship was torpedoed in Imperia harbour. Three more merchant ships were damaged by No. 458 and the combined effort of all squadrons of No. 328 Wing was intense enough to restrict severely both the provisioning of Sardinia and Corsica, and the apparent movement of shipping from the western Mediterranean towards the Aegean Sea.

From Egypt the Hudsons of No. 459 flew 284 sorties in defence of convoys during July and August 1943 without meeting any threat from either enemy aircraft or U-boats. No. 451 continued to provide readiness sections of aircraft for the defence of the Delta and for convoy protection but they also were untroubled by the enemy. The only offensive activity of this period in which Australians participated was a minor tragedy. After sharing in the general anti-submarine patrols No. 454 Squadron provided eight Baltimores for a special raid against Crete on 23rd July. Three wings of A.D.E.M. Hurricanes (including six of No. 451) led by Beaufighters were to sweep ahead of the Baltimore formation which was further protected by twelve Spitfires. The fighters met negligible air opposition but the Baltimores which attacked factories, barracks, road traffic and other targets of opportunity on the east end of the island, were met by concentrated and effective anti-aircraft fire. Five Baltimores were shot down and a sixth barely reached the North African shore, and thirteen Hurricanes also failed to return from this expensive venture.

Strait of Messina, either at the same time as the initial landing or in the course of the first battles when the German troops were tied down. This could have been accomplished quite easily on either side of the Strait, in southern Calabria or in the north-eastern corner of the island. The campaign would have proceeded more quickly and could have had no other outcome than the surrender of all the troops on the island.

"That this did not happen and that even the German withdrawal across the Strait was carried out unhindered, has always been regarded as a rare stroke of luck"

It is against this background that individual attacks, though apparently successful in themselves, must be considered.

⁸ W-O B. A. Watson, 406705. 52 Sqn RAF, 458 Sqn. Grocer's assistant; of Norseman, WA; b. Perth, WA, 30 Dec 1917.

The final occupation of Sicily ended one complete phase of Allied strategy for the Mediterranean sea route was now reopened and fairly free from enemy attack. Two days before Messina fell Mr Churchill, President Roosevelt and their staffs had met in conference at Quebec and there the master plan for the invasion of northern France, early in 1944, was approved. This heralded the withdrawal of many of the American and British forces then engaged in the Mediterranean. With Italy tottering and Marshal Badoglio's secret emissaries already in Lisbon asking only that the Allies should land in sufficient strength and in suitable locations to save Italy from German occupation, there was an obvious possibility of securing great gains at little cost. As these negotiations dragged on, and as the Germans, cynically aware of Italy's projected defection, poured more and more troops into key military areas of the peninsula, these hopes faded and were replaced by the more practical immediate objectives of capturing Naples and the important system of airfields and communications at Foggia from which could be mounted an assault against Germany subsidiary to the endorsed plan for OVERLORD.⁹ Thus, although the invasion of Italy was in point of time an apparent immediate sequel to the Sicilian campaign, it belongs to an entirely different strategic concept and takes its place in volume IV of this series.

⁹ OVERLORD was the code name for the major invasion of Europe.

CHAPTER 22

HAMBURG—THE LAST RAIDS ON ITALY— THE STRUGGLE AGAINST NIGHT FIGHTERS

By mid-July 1943 conditions in the Ruhr and Rhineland had reached a stage of physical and mental disorganisation which required only occasional "topping-up" attacks to prevent any dispersal of the immense enemy static and fighter defences in these regions. Although the industrial Ruhr had by no means been eliminated during the highly-successful spring-summer campaigns of Bomber Command, the scale of devastation actually accomplished, if repeated throughout Germany, was considered certain to achieve the main aim of the "progressive destruction and dislocation of the German military, industrial and economic system". It was now clear to both sides that aerial bombardment, which during the first three years of war had caused little damage in relation to the effort expended, could now by the use of Pathfinder and incendiary techniques, play a decisive part.

There was little possibility of Germany sharing the fruits of annihilation bombing because her strategic bombing force had withered away. Her only possible recourse was to a vigorous defence which would make Allied raids too costly to maintain, just as in 1940-41 German bombing attacks against England had been virtually defeated by a small well-organised fighter defence. Thus, during 1943, Germany withdrew units from Russia, the Mediterranean and France, and also further weakened the offensive bomber arm by employing Ju-88 and Do-217 aircraft as night fighters. Indeed the twin-engined fighter force nearly doubled, expanding from 410 aircraft in January to 780 in December 1943, while local-defence single-engined fighters (many of which could be employed at night) also increased from 635 to 870. This ever-growing force was used mainly in cooperation with the radar, gun and searchlight zone defences of the *Kammhuber Line*, which stretched along the north-west coast of Europe, but during the spring two innovations were introduced. Single-engined fighters were employed in conjunction with searchlights at the target proper while stronger forces of twin-engined fighters were thrown against the bomber stream both on its outward and homeward journey. Thus night fighting developed from closely-controlled operations in small box sectors to a coordinated operation over large areas.

There was also a significant reorientation of German gun and searchlight defences. Previously these had been parcelled out in small batteries among a network of defensive sectors, each of which was responsible for the defence of a limited area. The method of defence was to concentrate all searchlights in a sector on a single aircraft and then for all guns to fire at the apex of the light cone. The concentration in time and space of the British bomber streams during 1943 made this system largely ineffective. Accordingly guns were brought together into large batteries at all important

targets. Anti-aircraft guns were withdrawn or withheld from use in Italy and Russia while by the end of the year a vigorous production program ensured 30 new heavy batteries, 10 light batteries and 12 searchlight batteries each month.¹

Bomber Command was thus relieving pressure on the Russian and Mediterranean fronts; hastening the eclipse of German bombing strength; causing dilution and fatigue among enemy fighter units; and denuding France of both guns and fighters in advance of the projected Allied invasion.² These incidental results of area bombing were not lightly won, for during April, May and June aircraft losses averaged 4.6 per cent of all sorties, as against an over-all loss of 4 per cent during 1942 and 2.5 per cent during 1941. This casualty rate seriously prejudiced the growth of Bomber Command because, with an average production rate of between 200 and 300 bombers a month, little expansion was possible unless losses were kept low. To the basic difficulty of building up a force large enough to carry a bomb tonnage sufficient to obliterate individual targets was now added the necessity of engaging in large-scale air battles. Solution of this deadlock alone would give the ability to operate as frequently as was now desirable if destruction rate were to outstrip enemy resources to repair bombed areas.

As previously the answer was sought partly in planning, partly in new scientific devices and partly in the training, faith and willingness of crews to surmount any degree of opposition. All German defences depended in some measure on four types of radar installations:

- (1) *Freyas*, for long-range early warning of the approach of bombers. These were reinforced by wide-beam scanning installations dubbed "Hoardings" and narrow-beam installations called "Chimneys".
- (2) *Giant Wurzburgs*, accurate detectors to locate the actual position of bombers and to direct fighters within reach of them.
- (3) *Small Wurzburgs*, to aim radar-predicted anti-aircraft guns. One of these installations was captured during the raid on Bruneval on 27th February 1942.
- (4) Airborne interception sets.

These aids were in principle similar to English defensive measures, and their vulnerable features were well known.

Radio counter-measures (R.C.M.) were first employed to any degree in war for the defence of Britain against German bombing attacks during 1940-41. First, the system of normal radio beacons upon which enemy aircraft depended for navigation was upset by the introduction of false echoes which led bombers astray and caused crews to lose faith. Then the more precise "Knickebein", "X" and "Y" beams evolved by the Germans not only to keep aircraft along a true track but to indicate the target area itself, were successfully bent so that on many occasions enemy

¹ The standard heavy gun was 8.8-cm, a gun widely used also as an anti-tank weapon. Guns of 10.5-cm and 12.8-cm were increasingly used in 1943. (A heavy battery had four guns and two 20-mm light, a light battery twelve 20-mm or nine 37-mm with sixteen 60-cc searchlights, a searchlight battery had nine 150-cc searchlights.)

² The Western front German air defences preoccupied:
68% of the total fighter aircraft (i.e. 1,650 out of 2,440).
70% of the trained anti-aircraft personnel (900,000 men).
75% of heavy plus 55% of light gun batteries.

bombs fell in open country. To the scientist each twist in the night-bombing war set a problem which could be answered, given time for research and experiment, and provided authority was forthcoming to manufacture and employ the often very complex apparatus required. In general, new developments by the enemy could be quickly detected; many of them could be foreseen as logical desiderata for accurate navigation or target finding.

It was realised early that different applications of this scientific inventiveness could be applied offensively to prevent enemy interference with our own bombing campaign, but there was a well-founded view at levels higher than Bomber Command, that, while Britain herself was in danger of attack, it would be premature to commence a jamming war which would evoke a similar response from the enemy—because at that time the British night-defence organisation in particular was extremely vulnerable to electronic jamming. By August 1942, however, the position had changed considerably; enemy raids had diminished and our own defences were improved, so that an operational research section appreciation (then under consideration) of the advantages to be gained from employing radio counter-measures met with general acceptance. Thereafter what Mr Churchill called the “Wizard War” went on apace although delayed at times by difficulties in design, production and retrospective fitting of equipment.

The earliest attempt of Bomber Command to surmount enemy night defences had been by tactical measures such as evasive routeing or concentration of aircraft in time and space. The first positive move to disrupt the defences was a spontaneous campaign by aircrews themselves against the early sound-locators serving enemy searchlight and gun teams in the *Kammhuber Line*. Crews found that if empty bottles were dropped in the vicinity of searchlights, they would frequently be doused or appear to be ranged erratically. This effect was ascribed to the noise interference caused by the bottles as they fell. A comparable trial-and-error assumption led crews repeatedly to switch on and off electrical equipment in their aircraft while in danger areas in the hope that this would interfere with radar-directed searchlights. Although neither of these expedients really induced the confusion of enemy controls attributed to them, they were widely popular among Australian and other aircrews, and since at the time of their hey-day in 1941-42 the searchlight belt played a large part in enemy defences, they were certainly responsible for increased morale in the bomber force.

The scientific jamming campaign in support of Bomber Command was to become an essential background to the struggle between bomber and fighter, just as, in the war at sea, radar devices took an ever-increasing role in the hide-and-seek between U-boats and aircraft.

When the jamming campaign began, late in 1942, the existing main enemy defences were thought to be individual contiguous “boxes” lying along the entire northern coast of Europe. The weakest links in the chain of control (and therefore the most profitable to attack) were the

Freya early-warning system and the ground-to-air radio-telephony by which fighters were actually directed while in the air. Jamming techniques to blanket these at the crucial time for any single operation were not difficult to devise in theory and could be put into practice although the enemy had great latitude in himself devising ways and means of avoiding or overcoming jamming. It was not so simple to design equipment to jam enemy airborne interception sets carried by the fighters, so that while this problem was never neglected, much effort in the early days went into providing bombers with various types of warning devices, which, while not strictly radio counter-measures (since they did not jam anything), did much to ensure the safety of an alert crew.

As had been forecast, the enemy was by no means idle. By the end of August 1943 his fighter-control technique had undergone a radical change and he had virtually abandoned the ground-controlled interception (G.C.I.) box system to oppose increasingly heavy and concentrated raids. Instead he relied on controlling fighters *en masse*; that is, the fighters deployed against any raid were not individually directed against a particular aircraft but received their orders through a broadcast running commentary. This gave them particulars as to the position, height, course and speed of the raiders together with general instructions to ensure that the fighter cloud would settle over the bomber stream; the fighter pilots then acted according to their own individual initiative. This naturally called for some readjustment for the British jamming effort both in extent and application.

The next major development came when the Germans turned to the *Benito* method of controlling their night fighters. This was a system by which individual night fighters could be ranged and continuously located while at the same time receiving the necessary instructions from their ground stations, but once again a weak link in this method was identified and systematically jammed. By November 1943 the Germans were so hard pressed by these various counter-measures on all frequencies they were known to have in use, that they were forced to the expedient of employing the medium-frequency band on which were operated the public broadcast and propaganda stations of all countries. An evasive attempt to pass instructions in the form of a simple musical code by this means was quickly discovered.

There were to be many further developments in this fantastic nightly battle but the situation at the end of 1943 was that, however adroit the enemy was in using one or more of the means of communication which he had devised, his night fighters found it extremely difficult at crucial moments in their operations to find and hold an unjammed channel. Meanwhile in Bomber Command there was a realisation that even greater efforts must be made, if possible in the air itself, for the protection of the bomber force. On 1st December 1943 No. 100 Group was formed in Bomber Command to control all radio counter-measures and bomber-support activities.

The earliest of these counter-measures had demonstrably failed to prevent British losses attaining a dangerously high rate during the Battle

of the Ruhr. Furthermore since the abandonment in February 1943 of an early experiment there was no counter-measure directed specifically against radar-operated guns and searchlights. While analysis had shown that fighters were the major factor in British bomber losses, the growing efficiency of enemy gun defences could not be ignored. There was a further tactical consideration in that searchlight and guns frequently broke up the rhythm of the bomber stream, causing early aiming errors which were then magnified by later arrivals bombing apparently well-established fires. Therefore in July 1943 Air Chief Marshal Harris requested permission to use "Window", a technique of confusing radar stations which had been discovered in principle during 1941 but never exploited as it could equally well have been employed against British defences. The threat of German bombing had so decreased by 1943, however, and Bomber Command's need had become so great that the use of Window could no longer be delayed.³ This innovation was simply the dropping, during passage over enemy territory, of metallised strips which gave the same indication on a radar screen as did an aircraft and thus flooded enemy control screens with multitudinous true and false responses. Differing sizes of strips were to be employed against the *Wurzburgs* and airborne-interception radar sets.⁴

Thus, when Bomber Command turned from the badly-hit Ruhr to prosecute an autumn offensive deeper into German territory, there was no under-estimation of the problem of fighting through to each target. At the same time the old problem of precise target identification remained, for the spring successes had been attained within the limits of Oboe-controlled target marking, while for the wider raids now considered, H2S would necessarily have to be employed. The first great blow was therefore directed against Hamburg (see Table No. 41), where the coastline and river were expected to give sharp pictures on the radar screen, and which, moreover, could be approached over the sea with a minimum of enemy opposition, so that accurate, unhurried Pathfinder marking could be obtained. During late July and early August four major attacks were made within ten days.

All three R.A.A.F. squadrons took part in these raids, which were the heaviest yet attempted in any area. The re-equipment of many squadrons with Lancaster and Halifax bombers had greatly increased the actual striking power of the force. On 24th-25th July, 26 per cent fewer in numbers dropped 58 per cent more bombs than in the historic 1,000-bomber raid against Cologne a year earlier. It was on this occasion that Window

³ Throughout the war a priority system evaluating advantage and disadvantage to various services had to be adopted. Thus Coastal Cdn's Leigh light was delayed because of Fighter Cdn experiments with a nose searchlight; ASV Mark III for anti-submarine operations had to give place to H2S for Bomber Cdn; the jamming of the German radio-telephone network by Bomber Cdn was opposed by the Admiralty because it also distorted the wavelength employed by E-boats.

⁴ This simple but effective method of jamming had also been devised by the enemy, who likewise had refrained from using it in air operations because it was a double-edged weapon. Extreme urgency in the war at sea had led Admiral Doenitz in Jun 1943 to use the same principle in the "Aphrodite" radar decoy balloon which trailed metallic strips simulating a U-boat response.

was first used and it scored an immediate spectacular success.⁵ The sky was cloudless and the Pathfinder crews had no difficulty in marking the target so that crews arriving promptly in the main force found ideal conditions for their task. The searchlights were disorganised and the ground defences weakened considerably during the attack. Although three Lancasters of No. 467 sighted enemy aircraft, there was little serious opposition pressed home against the bombers. This swift and unprecedentedly heavy attack in the words of an official German report:

caused gigantic fires which could not be put out even after twenty-four hours had elapsed. Coal and coke supplies stored for the winter in many houses caught fire and could only be extinguished weeks later. Essential services were severely damaged

TABLE No. 41

HAMBURG

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Jul 24-25	791	740	460	26	26	2,300	12	1
			466	17	17			—
			467	15	15			—
Jul 27-28	787	739	460	24	23	2,313	17	—
			466	15	15			—
			467	17	17			2
Jul 29-30	777	726	460	24	23	2,277	28	2
			466	8	8			—
			467	17	17			1
Aug 2- 3	740	425	460	24	22	939	30	—
			466	15	14			—
			467	15	15			—

and telephone communications were cut early in the attack. Dockyards and industrial installations were severely hit. At midday next day there was still a tremendous dense cloud of smoke and dust hovering over the city, which, despite the clear sky, prevented the sun from penetrating through The Central Control Room was completely engulfed by fire and had to be evacuated Officers on damage reconnaissance could not on account of long detours get back with their observations and reports for hours. Despite employment of all available fire-fighting forces big fires could not be prevented from flaring up again and again.⁶

⁵ Aircraft were discharging Window over Hamburg at a rate of one bundle each per minute and this diffused cloud of foil was estimated to produce echoes similar to a force of 12,000 aircraft. The enemy radar screens were blotted out with a confused mass of echoes, only a small proportion of which were genuine and which were hopelessly submerged in the general confusion.

⁶ Translation in "21st Army Group Report", 18 Jun 1945.

Although all returning crews reported large fires, precise analysis of the damage inflicted was not immediately possible. At this stage all that was known was that an outstandingly successful raid had been achieved with extremely economical losses of only 1.5 per cent.⁷ It was not thought, however, that even such a heavy attack would destroy Hamburg, which with a sprawling built-up area of 8,380 acres was the second-largest city in Germany. However, just as it had been proved that an increase in the weight and density of individual attacks brought results in geometric rather than arithmetic progression, now Bomber Command proposed to heap attack on attack while defences were disorganised and thus achieve the maximum result. Accordingly, on 25th July 122 American Fortresses made a daylight attack to impede fire-fighting and that night, while the main bomber force was at Essen, six Mosquitos made a nuisance attack. Next day fifty-one Fortresses stirred up the fires once more, and at night Mosquitos again alerted the sorely-pressed civil defence organisation.

On the night of 27th-28th July Bomber Command operated in maximum force and in forty-five minutes dropped almost exactly the same tonnage of bombs as in the first attack. Forty-one Lancasters and fifteen Wellingtons were sent out by the R.A.A.F. squadrons and aided by good weather, all except one attacked. More enemy searchlights were observed but again the apparent result of the Window counter-measure was that they seemed unable to seek or hold aircraft accurately. Some aircraft were coned, but to the surprise of the crews they were not then subject to the usual fierce gun fire. Wing Commander Bailey of No. 466 Squadron and other pilots were more impressed with the "incredible column of smoke, resembling a cumulo-nimbus cloud" which rose to 22,000 feet and obscured the target-indicator bombs. Against weak defences and an already blazing target, crews found little difficulty in attacking, although some like Pilot Officer Symonds⁸ preferred to dive 6,000 feet in order to see clearly on the bombing run. Black, sooty specks covered the windscreens and turrets of other aircraft, and fires in Hamburg could be seen for 200 miles on the return journey. Again no night photography was possible but the same German report states:

The continuation of the first attack by daily and nightly nuisance raids made the enemy's intention to destroy Hamburg systematically quite plain. Therefore the fact of a fifth raid . . . was not surprising. Its magnitude and consequences however were far beyond all expectations The main weight of the attack this time was at the left shore of the Alster. Within half an hour the whole left side was in a terrible situation by a bombardment of unimaginable density and almost complete annihilation of those town districts was achieved Tens of thousands of small fires united within a short period of time to conflagrations which developed to fire-storms of typhoon-like intensity in the course of which trees of three-foot diameter were pulled out of the ground.

After a light harassing attack by Mosquito bombers on 28th-29th July, the main bomber force of the R.A.F. again visited Hamburg on 29th-30th

⁷ Since Jan 1942 the previous loss rate against Hamburg had averaged 5.4%.

⁸ F-Lt D. S. Symonds, DFC, 409611. 467 and 36 Sqns. Clerk; of Launceston, Tas; b. Kuala Lumpur, Malay States, 29 Mar 1923.

July. No other city in Germany had received more than one raid of over 2,000 tons, but this was the third for Hamburg in six nights. Fires had been seen blazing continuously in the city since the 24th, and once again more than half the bombs were of incendiary types. The target indicators were compactly laid well on time by the Pathfinder Force, and Australian crews reported that it was just a matter of stoking up fires of dull red until the target area was a single mass of flames two miles square. Again enemy defences had been strengthened, and Flight Lieutenant Henderson⁹ reported that he had never seen so many active searchlights, which on this occasion had recovered some efficiency and worked in cooperation with an increased number of fighters some of which burned navigation lights. Predicted anti-aircraft fire also seemed more accurate, and the enemy had correctly anticipated the withdrawal route along which he had massed mobile searchlights and batteries. Pilot Officer Pickles¹ (No. 100 Squadron R.A.F.) was one of several Australians who were in combats with fighters, but, although two gunners were killed, he finally escaped from two very determined opponents. Losses were about twice as high as on the two previous raids but still remained well below the previous rate to be expected against a target of this nature, and certainly were small in relation to the military result achieved. The port area and the thickly-populated suburb of Barmbeck were severely hit and, economically, Hamburg was temporarily knocked out as even the undamaged sections had to stop work on account of the destruction of water, gas and electricity supplies. A German report stated:

The cause of the terrific damage lies in the firestorms. The alternative dropping of block busters, high explosives and incendiaries made fire fighting impossible, small fires united into conflagrations in the shortest time and these in turn led to the firestorms. To comprehend these firestorms which go beyond all human imagination, one can only analyse them from a physical meteorological angle. Through the union of a number of fires the air gets so hot, so on account of its decreasing specific weight, receives a terrific momentum, which in turn causes other surrounding air to be sucked toward the centre In a built-up area, the suction could not follow its shortest course, but the overheated air stormed through the streets with immense force taking along not only sparks but burning timber and roof beams, so spreading the fire farther and farther, developing in a short time into a fire typhoon such as was never witnessed, against which every human resistance was quite useless.

Smoke did not clear sufficiently until 1st August to permit photographic reconnaissance but then it was revealed that 74 per cent of Hamburg's closely-built residential districts was heavily damaged. There were large areas extending for thousands of acres especially east of the city where every building in every street had been demolished or left roofless and gutted. This general destruction was on a scale, and more sudden and complete, than ever before seen in a city of that size during any war.

A final raid of the same dimensions, timed for 2nd-3rd August failed, not through enemy opposition but through the intervention of unexpectedly

⁹ Sqn Ldr J. R. Henderson, DSO, DFC, 412810; 460 Sqn. Factory student; of Mosman, NSW; b. Mosman, 24 Sep 1916.

¹ Sqn Ldr E. L. Pickles, DFC, 413248. 100, 625 and 550 Sqns RAF. Share farmer; of Baildale, NSW; b. Wangaratta, Vic, 10 Nov 1920.

bad weather. The bomber stream ran into severe electrical storms and icing conditions, and consequently became very dispersed. Few Australian crews could find the target indicators and although all but three dropped their bombs, most of them admitted that they did so by navigational aids only. Many bombs were jettisoned all over north-west Germany and more than a hundred crews bombed alternative targets in Bremen and Wilhelmshaven. One pilot of No. 466 who struggled through the extremely adverse conditions and descended to 9,000 feet over Hamburg could see only a few scattered fires and Pathfinder markers in the target area. Enemy defences were ineffective and few fighters were seen, but several Australian aircraft suffered engine trouble caused by ice. These flew home only with great difficulty so it is probable that most of the aircraft missing on this occasion fell victims to weather hazards rather than enemy action.

TABLE No. 42

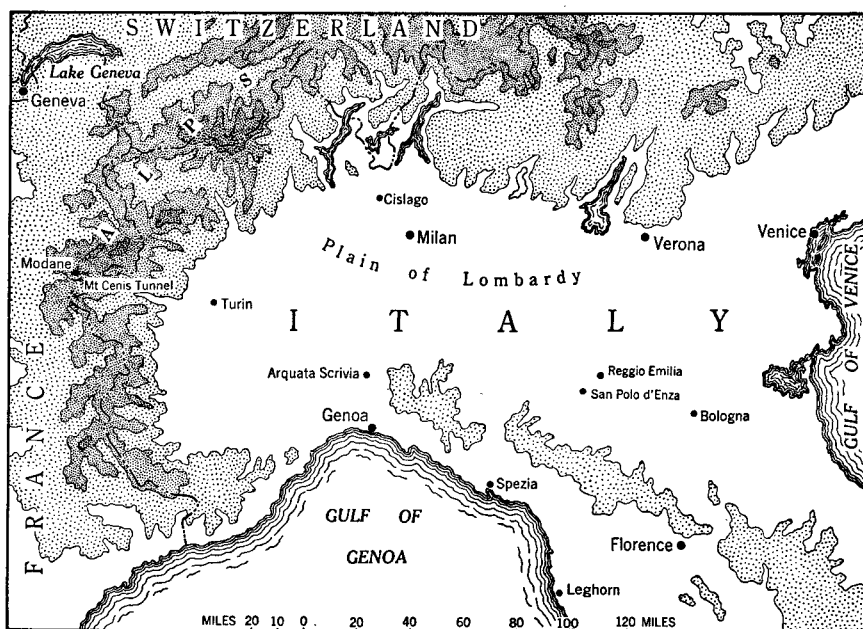
ITALIAN TARGETS

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943									
Jul 12-13	Turin	299	277	460 467	22 18	20 17	734	13	2 —
Jul 16-17	Cislago	18	18	467	5	5	75	—	—
Jul 24-25	Leghorn	33	33	467	3	3	84	—	—
Aug 7- 8	Turin	74	74	460	17	17	191	—	—
Aug 7- 8	Genoa	73	72	467	16	16	163	—	—
Aug 12-13	Milan	504	481	460 467	25 16	24 16	1,247	4	— —
Aug 14-15	Milan	140	133	460 467	11 6	11 6	403	1	— —
Aug 15-16	Milan	199	185	460 467	12 10	11 10	567	7	— 2

This devastation of Hamburg occurred mid-way in a series of twelve raids against cities in northern Italy designed to cripple Italian will to resist the invasion of Sicily and then of the mainland (see Table No. 42). Australian Lancaster squadrons flew on eight of these raids.

The small losses reflect the weakness of Italian opposition compared with that met at German targets and although a round trip of some 2,000

miles was entailed in each case, crews generally felt that the task was easy. Thus on 12th-13th July, when electrical storms and icing conditions prevailed along the route, two pilots of No. 467 flew their Lancasters most of the way on three engines, although having to make twice the dangerous crossing of the Alps. Their perseverance was rewarded for all crews found clear weather over Turin, and the Fiat steel, aircraft-engine and automobile factories were heavily hit in a deliberate attack. Wing Commander C. E. Martin of No. 460 Squadron reported that the actual defences were so weak and uncoordinated that, if necessary, a ten-minute bombing run could have been made without interference. In the next raid against Turin



Bomber Command: Targets in northern Italy.

only No. 460 was represented but the small force was on this occasion aided by a master of ceremonies who, in excellent visibility, supervised the dropping of Pathfinder markers. This technique was very helpful in that few bombs fell outside the target area, although no large uncontrollable fires resulted, as houses and buildings in Turin contained relatively little timber to start a conflagration.² On the same night, however, another small force including No. 467 started large fires in the dock area of Genoa and some of these spread into the town itself.

Milan now became the prime target, and on 12th-13th August was raided by the largest force ever sent to Italy. A master of ceremonies

² The same diminution of fire risk, the greatest single factor in area bombing devastation, had already been abundantly clear during enemy raids on Malta where most of the houses were of stone.



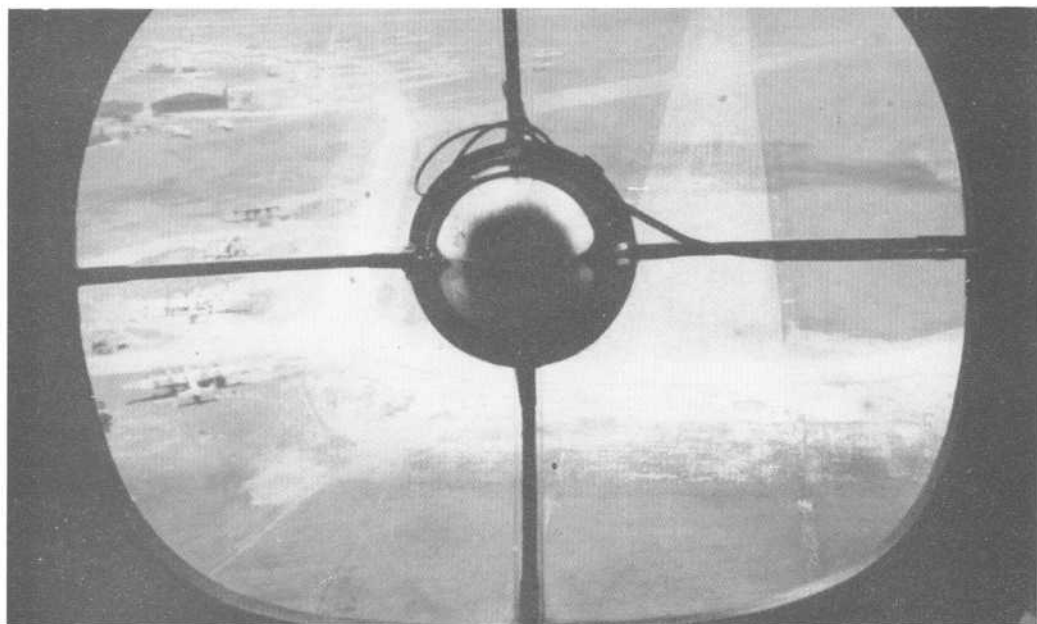
(R.A.A.F.)

Kittyhawk fighter-bombers of Nos. 3 and 450 Squadrons, armed with 250-lb bombs, moving towards the take-off point for a flight over Sicily, July 1943. The airman riding on the wing gave directions to the pilot as the forward view was obscured from the cockpit while the aircraft was taxi-ing.



(R.A.A.F.)

Ground crews of No. 450 Squadron place a bamboo roof on new quarters near Agnone airfield, south of Catania, in Sicily. August 1943.



(Air Ministry)

A typical Bomber Command two-squadron station seen through the nose of a Hamilcar glider approaching to land on one of the airfield's three runways. A perimeter track can be seen circling the alighting area, with tracks leading from it to the hangars and Lancaster dispersal areas.



(R.A.A.F.)

Preparing to bomb-up a Lancaster of No. 460 Squadron, armorer Cpl W. E. Dawson rides on a 4,000-lb high-capacity bomb (a "cookie"), while behind is a portion of the incendiary-bomb containers which made up the normal load for area attacks. September 1943.

accompanied the bombers in order to ensure that the Breda aircraft works was hit. Crews of No. 460 heard him correcting the aim of those undershooting to the north of the town, and advising pilots to "go in straight and level as the defences were hopeless". One Australian was challenged by an Italian fighter as he prepared for his bombing run but the enemy veered away without firing and the Lancaster continued its deliberate approach. The total result was a well-concentrated attack and many large fires soon enveloped the whole area. As always against Italian targets, crews were willing to take considerable risks to ensure maximum success, and Flight Sergeant Rees³ of No. 460, although hampered by one engine firing only intermittently from the outset and a second giving trouble soon after, determined to continue his flight. There was no hydraulic power for the mid-upper turret, the Lancaster would not climb above 17,000 feet and it fell behind the main stream. Rees, however, successfully threaded his way through the lower mountain passes, reached Milan, bombed and made a similarly isolated and hazardous return.

Two nights later a much smaller force was sent to Milan in two waves, one to attack the town and the other the Breda works. Pathfinders were punctual over the town but late over the factory target. Some crews of No. 460 briefed to attack the latter bombed prematurely relying on excellent visibility, but the majority of pilots preferred to circle while the "spectacular but pathetic" ground defences vainly attempted to engage them. Lancasters from No. 467 had no difficulty in attacking the town centre, because there marking was excellent and fires were still burning from the previous raid. One aircraft from this squadron, damaged while outward bound over France, bombed and then landed in North Africa. On 15th-16th August the bombers returned for the third time in four nights and in bright moonlight another successful attack was made. Ground defences were still inadequate but fighters were very active. No. 467 suffered a relatively heavy loss when the commanding officer, Wing Commander Gomm, and a deputy flight commander, Flight Lieutenant Sullivan,⁴ failed to return. Gomm had nursed the squadron through its formative stages and early career until it had reached a very high pitch of efficiency. Although not an Australian, his breadth of understanding and effective leadership had evoked the best qualities in his crews. He needed only one more sortie to complete his second tour of operations.

In addition to these "area bombing" attacks in July, No. 5 Group also made experimental raids against electricity plants in northern Italy, using the experience gained in the Mohne and Eder dams' attack. On 15th-16th July four groups each of six Lancasters were sent against transformer stations at Arquata Scrivia, Reggio Emilia, San Polo d'Enza and Bologna. Flight Lieutenant H. B. Martin (No. 617 Squadron R.A.F.) was the only Australian pilot involved and, taking off at 10.20 p.m. in the fading light of the long summer evening, he and five others flew in formation

³ F-Lt D. Rees, CGM, 415193. 460 Sqn, 7 Commn Unit. Civil servant; of Spearwood, WA; b. Maylands, WA, 5 Feb 1922.

⁴ F-Lt J. McD. Sullivan, 404909; 467 Sqn. Joiner machinist; of Coolangatta, Qld; b. Tweed Heads, NSW, 4 Jan 1919. Killed in action 15 Aug 1943.

across France at 100 feet, rising to clear the Alps at 1 a.m. The Lancasters maintained contact as best they could, and then, in deteriorating conditions, dropped down into the Plain of Lombardy to identify and bomb the San Polo target from 800 feet. The small force then flew out into the western Mediterranean and headed southwards, landing at Blida in North Africa. No. 467 Squadron had also carried out special training for operations of this character and on the next night provided five Lancasters for a similar attack against Cislago. One aircraft with its radio-telephone out of action lost contact with the formation and made a lone attack on Spezia from 14,000 feet only to receive the concentrated fury of the entire ground defences, but although badly damaged it just managed to reach North Africa. Meanwhile, the other aircraft had great difficulty in identifying their precise target and during the hour and a half spent combing the area suffered several attacks from Italian night fighters, but eventually Cislago transformer station was found and left in flames. Finally on 24th-25th July, the same night that the first Hamburg raid was attempted, thirty-three Lancasters left North Africa and made individual attacks against Leghorn from altitudes between 5,000 and 9,000 feet and then made an uneventful return to their parent stations in England.

These last stages of attacks against Italy were extremely successful both in causing material damage and in finally destroying what little inclination remained among the civil population of that country to continue a disastrous war. Neither these attacks nor the impressive results at Hamburg did more than to show that under favourable conditions bombing could cause tremendous damage, certainly they did not prove that in every case similar success could be expected. The range, flexibility of operation and weight of attack of the four-engined bomber, however, had been vindicated fully, and it was clear that the harder battles of the future would be fought primarily with the Lancaster bomber. The range, ceiling and bomb-carrying capacity of this aircraft outstripped that of the other four-engined types, the Halifax and Stirling, to an extent that on distant targets it was becoming tactically and economically disadvantageous to employ mixed forces of these aircraft. It was doubly unfortunate that industrial strikes during August should curtail production of Lancasters and thus prohibit expansion of Bomber Command during the good campaigning weather of autumn. Lancasters were withdrawn from operational training units to boost front-line strength; henceforth crews were trained on Halifax or Stirling aircraft and did a final short conversion course at a Lancaster finishing school.

The era of the medium bomber was manifestly past as far as the main campaign against Germany was concerned. Although No. 466 had reached its highest peak of efficiency in the raids against Hamburg when all but one of the fifty-five aircraft dispatched attacked without loss, it conducted only two more bombing raids before it was withdrawn for re-arming with Halifax aircraft. The Wellington, rugged and reliable though it was, had an inferior bomb load, required practically the same crew as a four-engined bomber, and was vulnerable to the new weight

of enemy attack. No. 466 could take no part in the long-range raids during August and, after one appearance on 30th-31st August with the main bomber force at Munchen Gladbach (see p. 603), it made its final raid with Wellingtons against ammunition dumps in the Hesdin Forest in northern France. This was a small but successful attack, designed primarily to assist the simulated raid (Operation STARKEY) by ground troops against Boulogne timed for 9th September. But No. 466 was by no means idle during August, and the Wellingtons laid 236 mines off the Frisian Islands and the west coast of France. As they had no specialised equipment such as H2S which was later to facilitate greatly accurate mine-laying in all areas, the Wellingtons still sowed their mines after a timed run from a visually-identified coastal landmark. Haphazard sowing out of normally-used navigational channels was wasteful and because meticulous care was required No. 466 was allowed to choose its own route and pinpoints on these trips, which had special hazards of their own, although by skilful application to the problem in fact only four Australian aircraft were lost during 1943. Nor, although the application of mining was pre-eminently in relation to the war at sea hindering U-boats and blockade runners and tying up on defensive tasks a seriously high percentage of German naval manpower and material, was it really divorced from Bomber Command's own main task. Serious dislocation and delay in enemy vital seaborne communications had a complementary effect on raw materials for Ruhr industries and on military supplies for the Russian front and Norway.⁵ On bombing and mining duties No. 466 flew 168 sorties during August, a record for any two-flight squadron in No. 4 Group. The crews began training with Halifax aircraft with the same enthusiasm and determination, although it was realised that there would be no further operations for three months. On 25th September Wing Commander Forsyth⁶ assumed command of the squadron, replacing Wing Commander Bailey who had led it since it formed.

With lengthening nights in the late summer and autumn, Bomber Command revisited the major cities in southern Germany. The success or failure of raids almost entirely depended on the accuracy with which target indicators were dropped by Pathfinder crews. Heavy losses in the Ruhr raids had led to a shortage of experienced crews, and H2S, which was now to be the main means of locating the target, suffered from frequent unserviceability and moreover required a steady uninterrupted run of several minutes before the indicators could be dropped. On well-defended targets there was thus a tendency for indicators to drop very wide. This could result in concentrated but wasted bombing in open country especially as there was a tendency among inexperienced main-force crews to drop bombs on the first indicator seen, and a fire once started in an unimportant area

⁵ Bomber Cdn laid 13,835 mines during 1943. Of this total RAAF sqns sowed 972 (661 by No. 466, 174 by No. 467 and 137 by No. 460).

⁶ Gp Capt D. T. Forsyth, DFC, 141. Comd 25 Sqn 1941-42; SASO HQ Western Area 1942-43; comd 466 Sqn 1943-44, RAF Stn Driffield 1944-45. Regular air force offr; of Glen Iris, Vic; b. Melbourne, 14 Jun 1915.

usually attracted more and more of the succeeding bomb loads. On these long-distance raids, too, the difference in speed between Stirlings and Lancasters of the Pathfinder Force often led to poor timing so that the real aiming point was not indicated throughout the raid. Nor was it possible after August to give any one target the swift repeated hammer blows which had won such success at Hamburg. After three raids early in September, weather and the full moon kept Bomber Command inactive for fifteen nights, the longest period for a year, and only four more raids followed before the end of the month. Similarly, in October, six raids were possible during the first eight days, but only another three later in the month.

Mannheim (see Table No. 43), the first target chosen, had already received 4,500 tons of bombs in 27 raids without suffering more than superficial damage. It had one advantage as a target in that it was a compact town which with its satellite Ludwigshaven (joint population 450,000), lay athwart the Rhine and thus gave a satisfactory response on an H2S screen. Three major raids were mounted.

TABLE No. 43

MANNHEIM-LUDWIGSHAVEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Aug 9-10	457	432	460 467	24 17	17 17	1,684	9	— —
Sep 5- 6	605	546	460 467	19 12	18 12	1,463	34	— —
Sep 23-24	630	571	460 467	19 16	16 16	1,862	32	1 2

On 9th-10th August crews observed the glow of large fires developing around the position of markers, and several very large explosions, but in fact only a limited amount of damage was caused in the most southern part of the city. Guns and searchlights were as disorganised as they had been at Hamburg, but free-lance fighters were active. Four Lancasters of No. 467 were intercepted over Mannheim, but all escaped and Flying Officer Good⁷ and his crew on their first operational flight shot down an Me-109. The Lancasters of No. 460 were among the first to be fitted with a device which gave visual warning of approaching fighters, and these

⁷ F-O M. R. Good, 285324; 467 Sqn. Clerk; of Alberton, SA; b. Gawler, SA, 15 Oct 1918. Killed in action 28 Aug 1943.

aircraft reported no combats. The raid was thus largely negative, neither offence nor defence gaining any decided advantage. A month later on 5th-6th September a battle royal developed because both sides had revised their tactics. In favourable weather with cloud en route but clear skies over Mannheim, the main bomber stream was aided navigationally by flares dropped at turning points over France and Germany. The Pathfinders made a well-timed and very thorough identification of the target before releasing their coloured target indicators. The whole force attacked in the short space of forty-five minutes, a very satisfactory average of one aircraft every five seconds. Material damage amounted to devastation of more than 300 acres of business and residential property and heavy damage to factories, railways and warehouses. But although Bomber Command thus scored its first real success against this city, the Germans shot down 5.6 per cent of the attackers, a dangerously high proportion. Guns at first fired at maximum intensity in order to upset the opening rhythm of attack, and they then fired box barrages to lower altitudes to keep the bombers up in an area swept by 200 searchlights cooperating with large numbers of fighters. Although all the Australian Lancasters returned safely, several suffered heavy damage. Warrant Officer Wicks⁸ of No. 460 was coned in searchlights as his aircraft began its bombing run, but he broke clear and bombed only to be held a second time by the persistent searchlights. To escape them he dived down through the barrage to 11,000 feet, but even there he was attacked by a Ju-88 which disabled one of his engines before he could escape.

The third occasion proved slightly more favourable to the defenders. As before, heavy gun fire soon gave way to fighters hastily summoned to Mannheim, and these, besides cooperating with searchlights, laid lines of white flares over the bomber stream to assist their own attacks. Thus, although the raid had been further compressed into a space of thirty-three minutes (a rate of one aircraft every 3.5 seconds), again over 5 per cent of the bombers were lost. Equally important, although the Pathfinders had done their job well, there was an ominous creep back of the bomb line into open country as inexperienced crews or those unsettled by the formidable defences hastily bombed the first fire they saw. Nevertheless enough extra damage was inflicted on both Mannheim and Ludwigshaven during this raid to remove them from the priority bombing list, although the most important target of all—the I.G. Farben factories at Ludwigs-haven—had escaped lightly.

The effect of the Window counter-measure, while immediately and permanently reducing the percentage of bombers damaged by anti-aircraft gun fire, thus appeared temporarily to have actually increased the danger from night fighters. The Germans had been forced to abandon their rigid ground-controlled interception system but on the skeleton of the target free-lance fighter system they rapidly built up a new potentially successful defence. Radio and visual beacons were used to congregate fighters in the

⁸ W-O R. R. Wicks, 409356, 460 Sqn, 156 Sqn RAF. Warehouse assistant; of Caulfield, Vic; b. Caulfield, 12 May 1922. Killed in action 2 Dec 1943.

air until the target of the bombers became apparent, and they were then sent there in force from as many directions as possible. Technical counter-measures were to involve minor tactical changes but this new system of large-scale, loosely-controlled night fighting by both single- and twin-engined aircraft continued throughout the remainder of the war. Bomber Command therefore set itself to defeat the time factor on which the Germans depended. As at Mannheim on 23rd-24th September, raids were compressed into shorter and shorter intervals over the target, so that only the nearer fighters could arrive in time. The running commentary of German ground controllers was repeatedly imitated by bogus controllers giving false instructions. The *Freyas*, which gave early warning of a bomber stream, were opposed by jamming apparatus, so that the bombers appeared to burst through a curtain at any point on the enemy coast. "Spoof" (i.e. diversionary) raids were mounted to lure fighters away from the true target at the critical moment, in much the same way that minor Circuses were trying in daylight to clear the air for major bombing attacks. Single bluff soon became double bluff, with the whole radio war ostentatiously waged on nights when no bombing was contemplated, to be followed by actual raids when the tell-tale preliminaries were omitted.

TABLE No. 44

NUREMBERG

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis- patched	Attack- ing	Sqn No.	Disp	Atkg			
1943								
Aug 10-11	653	611	460 467	24 16	23 16	1,608	16	— —
Aug 27-28	674	621	460 467	21 14	20 14	1,671	33	— 1

Whenever possible, spoof raids were directed against targets of intrinsic value, and thus on 4th-5th October (real objective—Frankfurt-on-Main) sixty-six Lancasters, including fifteen of No. 460, returned to Ludwigshaven to attack the I.G. Farben works. Australians found the target indicators scattered in two widely separated groups. They were unable to make a visual check, and in choosing to bomb the more southerly concentration, they dropped their bombs well clear of the chemical factories.

The same battle of tactics was apparent during two attacks against Nuremberg (see Table No. 44) which now ranked as one of the most important armament and engineering centres in Germany.

On 10th-11th August heavy cloud unexpectedly covered the target and Pathfinder flares soon fell from view. Enemy dummy fires and premature release of bombs soon added to the confusion of aim apparent among later arrivals. Flight Lieutenant Lane⁹ (No. 460), one of the first Empire Air Scheme pilots, completed his second tour of operations during this flight. This experienced pilot reported that incendiary fires formed an approximate line from the position of the target indicators to a point twenty miles farther to the north-west. From this random sowing came only a small and scattered crop of damage, but the cloud also interfered with searchlights so that German fighters, although present in large numbers, also had little success. On 27th-28th August conditions were radically different and visibility was marred only by slight ground haze. The attack began well but imitation red markers were dropped by German aircraft and these, together with dummy fires, again spread the attack over non-vulnerable rural areas. Enemy fighters flew around with their navigation lights burning so that both they and the ground defences had great freedom of action, and took a heavy toll of the attackers.

With lengthening nights the main bomber force could again range as far afield as Munich (see Table No. 45), which since March had suffered only light harassing attacks by Mosquitos.

TABLE NO. 45
MUNICH

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Sep 6- 7	404	365	460	17	16	1,020	16	—
			467	7	7			—
Oct 2- 3	294	273	460	18	18	958	7	2
			467	17	14			2

The first raid began punctually but marking was scattered and Australian pilots reported that bombs were falling as far distant as Augsburg. Nevertheless the more experienced crews persevered and lit moderate fires in the southern districts of Munich. Searchlights and strings of fighter flares were well in evidence and on this occasion the fighters employed pyrotechnic signals to attract their comrades to the bomber stream. The dangerously high ratio of casualties to positive success on these long-distance raids caused great anxiety, and on 2nd-3rd October two tactical

⁹ F-Lt E. O. Lane, DFC, AFC, 402057. 148 and 216 Sqns RAF, 460 Sqn. Solicitor; of Artarmon, NSW; b. Grenfell, NSW, 26 Apr 1916.

expedients were introduced by Bomber Command. Firstly to improve bombing, the Pathfinders dropped flares over the Wurm Lake so that aircraft could make a timed run into the centre of Munich. There was still a tendency for incendiary bombs to fall short¹ and Flight Lieutenant Locke² who made a painstaking approach estimated that the main fires were four miles away from the centre of the city. This was later confirmed by photographs which showed the business and residential areas largely intact although significant isolated damage had resulted in outlying suburbs. The whole raid was over within fifteen minutes and, although fighters were present over the target, they had fewer opportunities there. The second innovation was an angle interposed in the bombers' withdrawal route, so that German fighters airborne to attack them during the return flight assembled in incorrect positions.³ Nevertheless it was a costly night for Nos. 460 and 467, each of which lost two Lancasters out of the total of seven which failed to return from the whole force. Many Australian crews also commented on insufficiency of petrol for evasive routeing on such a long trip. One Lancaster of No. 460 had to put down at Tangmere as soon as it reached the English coast, and Pilot Officer McIver,⁴ an experienced pilot of No. 467, was killed when he crashed into the Channel twenty-five miles short of the nearest emergency airfield. These raids, although far from faultless, caused worthwhile damage to railway communications and an I.G. Farben instrument factory.

For the attack against Frankfurt-on-Main on 4th-5th October No. 467 sent twelve Lancasters. This was the fourth successive night on which the squadron had operated, and there was official commendation of the skill and keenness of ground crews who worked exceptionally hard to service and bomb up the aircraft. Apart from routine engine and airframe checks, complicated radio and radar equipment, guns and turrets, oxygen apparatus, the hydraulic system, parachutes, instruments, bomb-release and electrical systems all had to be thoroughly inspected and replaced where necessary before each flight. After the night-flying test each Lancaster had then to be loaded with an average of four tons and a half of bombs⁵ and pyrotechnics each properly fused and the aircraft then refuelled. To do this on four successive nights without an aircraft experiencing any technical failure or delay in take-off was an excellent example of teamwork between the English and Australian tradesmen at Bottesford. On this occasion all twelve Lancasters returned safely although Locke's aircraft was heavily damaged by fighter attack before it reached the target and he was forced

¹ Throughout the war the ballistics of incendiary bombs were unreliable. When dropped from great heights some types of bomb oscillated in trajectory. Special tail fins cured this defect but restricted the number of bombs which could then be carried.

² Sqn Ldr H. B. Locke, DSO, DFC, 401980. 467 and 463 Sqn, 97 Sqn RAF. Bank clerk; of Kyabram, Vic; b. Kyabram, 1 Oct 1919.

³ Bomber Cd thus began to use the "diversionary routeing" tactics which had been employed by convoys to escape U-boats known to be massing for attack.

⁴ P-O K. A. McIver, DFC, 412636; 467 Sqn. Contractor; of Merriwagga, NSW; b. Bendigo, Vic, 1 Jan 1918. Killed in action 3 Oct 1943.

⁵ Bomb loads varied with the nature and distance of the target. A typical mixed explosive and incendiary load for area attack was: 1 x 4,000-lb H.E. plus 64 x 30-lb incendiaries plus 1,200 x 4-lb incendiaries.

to jettison its blazing incendiaries. The other Australian pilots found the target well marked and, against relatively weak opposition, attacked the river dock area in the eastern half of the city which was soon ablaze. Altogether 1,100 tons of bombs were dropped by the total of 357 aircraft which reached the target and besides widespread commercial and civilian damage, thirty-seven factories were severely damaged.

On 7th-8th October simulated raids by Mosquitos and Lancasters against Munich and Friedrichshafen drew enemy fighters away from Stuttgart which was the main target for 342 Lancasters. The two Australian squadrons dispatched thirty-seven aircraft and all except one bombed in the face of negligible opposition. The only Australian aircraft attacked was actually fired on by an over-anxious gunner in another Lancaster.⁶ This tactical freedom of action over the target was largely wasted, however, because Pathfinder marking through a complete overcast was on this occasion ineffective. The target indicators fell in two groups five miles apart and indiscriminate bombing destroyed the pattern of attack. Few bombs fell on Stuttgart which thus experienced yet another lucky escape.

Long-range area attacks were thus mainly against cities in southern Germany, but Bomber Command was also called upon during August to make a special attack against the experimental scientific station at Peenemunde in the Baltic. With no strategic-bombing force wherewith to strike at England, the Germans had turned to develop pre-war experiments with rockets in order to perfect a means of retaliation for the ever-increasing weight of attack on Germany.⁷ Peenemunde had been under constant watch by the photographic reconnaissance squadrons and it was apparent that the "secret weapons", increasingly heralded in German propaganda, were indeed in a stage which might easily prejudice the success of the impending Anglo-American invasion of Europe. Such a raid at extreme range, and designed to hit many small buildings adequately dispersed over a wide area, demanded special preparation and the acceptance of increased risks to achieve success in one surprise attack. Accordingly, not only was it considered justified to mount the raid in bright moonlight on 17th-18th August so that visual marking would be practicable, but specialist squadrons of No. 5 Group, using the low-level technique pioneered at Mohne and Eder, were in the van of the attacking force led for the first time during a heavy raid against Germany by a master of ceremonies.

Thirty-four Australian Lancasters were included in the total force of 597 heavy bombers, the largest yet sent against Germany. At briefing crews were urged to make special efforts to ensure that they would indeed hit the target. It was therefore with an unusual sense of purpose and deter-

⁶ This followed a general instruction to gunners to think and act offensively and thus deter night fighters from pressing in close. In a closely-packed bomber stream, this entailed some risk of endangering friendly aircraft but in fact, like the danger of collision, was not in practice great. The absence of a device to distinguish between friendly and enemy indications on the radar tail-warning apparatus was an obvious handicap.

⁷ Rocket missiles weighing up to 80 tons were being developed by the German Army. The most advanced of these projects was the A.4 rocket bomb which was later employed as *Vergeltungswaffen* (Reprisal Weapon) or V.2. The German Air Force was similarly engaged with a pilotless aircraft — the *Fernzielgerät 76* (Long-range Target Implement) which became the V.1.

mination that all set out on this hazardous venture in which poor execution, by warning the enemy, might be more costly than not attempting the raid at this time.⁸ As the route to the target coincided with that previously used against Berlin, a harassing raid was made against the German capital to preoccupy night fighters while the bomber stream in three waves headed on for Peenemunde. In clear weather early Pathfinder crews identified their targets visually from low level before a defensive smoke screen could be brought into operation. Pilot Officer Coldham⁹ (No. 156 Squadron R.A.F.) met intense light gun fire but saw his own and other target indicators falling accurately on key points in the sprawling complex of buildings which covered an area four miles and a half long by half a mile wide. The master of ceremonies then flew up and down advising the consecutive waves of bombers by radio-telephone which target indicators to attack so that the destruction would be spread to all vital points. All R.A.A.F. crews agreed that this controlled tactical direction was of very great value, for they were especially warned about a few misplaced indicators and accordingly an abnormally high percentage of bombs did fall on their correct targets. The destruction in both manufacturing buildings and living quarters was very heavy. As soon as the real object of the raid was apparent the Germans hurried up the night fighters deployed over Berlin and sent others from as far south as the Ruhr to cover the withdrawal route. Consequently the third wave of bombers suffered heavily. Forty bombers were lost in the clear moonlit sky which favoured fighter interception but in relation to the considerable delay caused to enemy plans for a robot offensive, this was an outstanding success for Bomber Command.¹ Only two Australian aircraft were shot down but two others managed to return only by the most consummate airmanship. A Lancaster piloted by Warrant Officer Wilson² was hit by cannon fire from an Me-109 while over Peenemunde. The rear gunner was wounded, his turret hydraulic lines shot away and his ammunition set on fire but he shot down the attacker and then helped other members of the crew to extinguish the fires. Elevator and rudder controls had also been damaged but Wilson evaded several other fighters which approached and safely flew the bomber home. Pilot Officer Rees also was attacked four minutes after he had bombed, and though his gunners drove off the attacker he had to face the long return journey with one faulty engine, his starboard tail plane shot away, and one tank pierced and drained of petrol.

Within a month of its phenomenal success at Hamburg, Bomber Command made three heavy attacks against Berlin (see Table No. 46) within the short space of ten nights. Now that a sufficient number of heavy

⁸ Crews were not informed of the true purpose of this raid. For security reasons they were briefed that the enemy was developing a new radar measure against night bombers and that unless the experimental station was destroyed there would inevitably be increasingly heavy casualties in the bomber force. This explanation was ideal to inspire all to do their best.

⁹ F-Lt P. A. Coldham, DFC, 401908, 460 Sqn, 156 Sqn RAF. Law student; of Caulfield, Vic; b. Sydney, 18 Feb 1919.

¹ There were other factors; in particular the offensive against launching sites which also caused delay in the enemy preparations.

² F-Lt W. L. Wilson, DFC, 403972; 467 Sqn. Clerk; of Willoughby, NSW; b. Willoughby, 29 Jun 1921.

bombers seemed assured, a winter campaign against the German capital was desirable both to damage industrial capacity and national morale. Any raid against Berlin, however, entailed a minimum flight of 500 miles over hostile territory. This minor autumn series was thus mainly to test the probable new enemy defences in preparation for the main campaign.

TABLE NO. 46

BERLIN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Aug 23-24	719	625	460 467	24 14	22 14	1,765	57	1 1
Aug 31-Sep 1	621	512	460 467	21 15	21 14	1,359	47	1 —
Sep 3- 4	320	295	460 467	24 15	24 15	906	22	3 2

During the first raid German aircraft dropped dummy target indicators well clear of vital areas, but Australian pilots reported that these imitation markers lacked brilliance and did not cascade; however, they did attract many bombs. The main weight of effective attack fell in south and south-west suburbs despite the attempts of a large force of free-lance fighters to disrupt the timing and concentration of the raid. Pilot Officer Whiting³ was attacked three times in the target area and finally had to jettison his bombs without precise aiming in order to withdraw his damaged aircraft. Other Australians encountered fighters over all stages of the route, though these were mostly evaded by good crew cooperation. For the second attack a fairly heavy diversionary raid, including twelve Wellingtons from No. 466, was made against ammunition dumps in the Hesdin Forest, but this had little effect on fighter defences at the capital where parachute flares at 20,000 feet illuminated the bomber stream which then sustained persistent attacks. Apart from relatively high losses the raid itself was almost a complete failure because an unexpected veer in the wind led to badly-timed and inaccurate Pathfinder marking so that most of the bombs fell ten or more miles south of Berlin.

The third attack against Berlin on 3rd-4th September, although the smallest in numbers, was in some ways the most effective and caused heavy

³ F-Lt J. H. Whiting, DFC, 407853; 467 Sqn. Law student; of Adelaide; b. Fullarton Estate, SA, 14 Nov 1920.

damage in the Siemenstadt, Charlottenburg and Mariendorf industrial suburbs. Four Mosquitos dropped decoy fighter flares well clear of the bomber stream and the usual diversionary attacks against towns and airfields were also mounted. The defences of Berlin were still strong, however, and the Australian squadrons suffered relatively high losses. No. 467, which had lost one commanding officer at Milan and his temporary relief three nights later at Peenemunde, now lost a newly-appointed flight commander, Flight Lieutenant Carmichael,⁴ and one other crew. No. 460 also lost a flight commander (Squadron Leader Kelaher⁵) and two other aircraft. One of these, captained by Flying Officer Randall,⁶ was badly crippled by gun fire and then by fighter attack over Berlin, but the pilot managed to fly it to Sweden before ordering his crew to bale out. Several other aircraft were badly damaged but the desperate battles with fighters had not brought any lowering of morale or determination. Flying Officer Gardner⁷ continued his journey to bomb Berlin although his Lancaster had been badly damaged in a collision with another aircraft.

None of these attacks was an unqualified success but the autumn raids were in general heavier and more successful than previous attacks against the capital. By this time approximately 500 acres of the totally built-up area had been destroyed or heavily damaged, but, although important, this was still only 3 per cent of the whole city. Probably the most significant result was the effect on German morale, for the panic evacuation which followed the first heavy attack was compared by German and neutral observers to that experienced at Hamburg. The raids, as expected, had been met by correspondingly heavier opposition. Each side had tested the other and the stage was now set for the winter battle.

Although there was no sustained offensive against Ruhr and Rhineland cities (see Table No. 47) during autumn 1943, several raids were made against outstanding industrial targets with the additional objective of upsetting the progress of reconstruction and the removal of defences to other threatened areas.

The Leverkusen raid was a military failure. Heavy cloud obscured the target indicators and most Australians admitted that they bombed the estimated position of the town from the best indication they could find. One pilot of No. 460 Squadron checked his position by observing the searchlights at Cologne and Dusseldorf before attacking the estimated target position. The I.G. Farben chemical works was not hit and although the glow of widespread fires could be seen, these were scattered over neighbouring towns and had only secondary effect.

More successful was the double thrust a week later against Munchen Gladbach and its dormitory suburb Rheydt. Both were centres of textile

⁴ F-Lt R. Carmichael, 412391; 467 Sqn. Clerk; of Bourke, NSW; b. Bourke, 17 Apr 1918. Killed in action 4 Sep 1943.

⁵ Sqn Ldr C. R. Kelaher, 39465 RAF, 267504; 460 Sqn. Regular air force offr; of Sydney; b. Sydney, 4 Mar 1914. Killed in action 4 Sep 1943.

⁶ F-O F. A. Randall, DFC, 413896; 460 Sqn. Student; of Wollongong, NSW; b. Sydney, 15 Jun 1922. Killed in action 16 Dec 1943.

⁷ Sqn Ldr C. C. Gardner, DFC, 416423; 460 Sqn. Branch manager; of Streaky Bay, SA; b. Streaky Bay, 19 Jul 1915.

industries. Lancasters of No. 460 were included in the first wave attacking Munchen Gladbach and pilots observed that, after a somewhat scattered beginning, concentrated fires sprang up in the south-east of the town. Twenty minutes later No. 467 arrived in the second wave and confirmed that fires were burning in Rheydt before the markers were laid. More than 50 per cent of the central area of each town was swept by raging fire and photographs showed that 143 factories had been damaged in some degree. Enemy fighters arrived too late to intercept the first wave and No. 460 was untroubled. The attack on Rheydt, however, was bitterly opposed and the bombers were followed during part of their homeward journey. One Australian Lancaster was attacked but immediate counter-fire from both turret gunners drove off the fighter. The Wellingtons of No. 466 equipped with two special radar sets suffered no losses at the target but two aircraft collided shortly after taking off. Both crews were killed and one Wellington fell in the centre of Goole in Yorkshire causing civilian damage and casualties.

TABLE NO. 47

RUHR AND RHINELAND

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943									
Aug 22-23	Leverkusen	462	427	460 467	21 11	21 11	1,690	5	— —
Aug 30-31	Munchen Gladbach	660	616	460 466 467	23 15 14	22 13 14	2,272	25	— 2 —
Sep 29-30	Bochum	352	312	460 467	15 16	15 16	1,318	7	— —
Oct 1- 2	Hagen	251	240	460 467	17 18	17 18	1,103	2	— —
Nov 3- 4	Dusseldorf	589	527	460 467	23 18	23 18	2,234	18	— 1

On 29th-30th September a spoof raid against Gelsenkirchen kept enemy fighters well clear of Bochum. Visibility was very good but at first the raid threatened to go astray because the Pathfinders were late. One Australian on his first sortie, seeing no other indication at the stipulated time of bombing, attacked a green flare dropped to mark the last

turning point on the route. His bombs started a fire in open country, and, as always happened, this soon attracted more bombs. However, once the true target indicators were laid, collieries, steel works and railways in the northern and north-western suburbs were severely damaged.

The raid against Hagen, the main known centre for the manufacture of U-boat accumulators, was the smallest but by far the most successful of this series, both in the devastation caused and the freedom from any opposition.⁸ The Oboe system of target marking was employed and R.A.A.F. Lancasters arrived to find the attack already well centred on the city, and in all thirty-nine factories were damaged. These extremely favourable conditions were not present, however, when a large bomber force returned after an absence of five months to the important target of Dusseldorf. The bombing was of high order, but the relatively small losses were due to the fighting spirit of the R.A.F. crews rather than lack of *Luftwaffe* opposition, which was determined and sustained. Flight Lieutenant Trobe,⁹ in a Halifax of No. 10 Squadron R.A.F., was singled out for particularly heavy attack. Firstly two Me-110's appeared, and, while one flew round burning a nose-searchlight to attract attention, the second attacked wrecking the compass, inter-communication system and rear turret of the Halifax. The decoy fighter now attacked but by skilful cooperation between Trobe and his mid-upper gunner, Flight Sergeant Mowatt,¹ was eventually shaken off. A few minutes later a third fighter approached and damaged the port-side fuel lines, stopping two engines, although one was coaxed into action again while Mowatt drove off the fighter. A fourth enemy appeared and the Halifax was again damaged but as the fighter came in close Mowatt, wounded and his turret bursting into flame, continued his return fire and set the enemy on fire also. Even after the fires in its fuselage were extinguished the Halifax was in far from airworthy condition, but, with three wounded men aboard, Trobe refused to give the order to bale out and courageously turned for England. After a nightmare flight he succeeded in reaching an emergency airfield. Squadron Leader Kingsford-Smith² of No. 467 was also attacked by four fighters one of which was damaged, while the R.A.F. mid-upper turret gunner of a Lancaster piloted by Flying Officer Patkin³ shot down another fighter, and several other R.A.A.F. Lancasters were in combat.

Attention also turned at this time to the large cities in the west-central plain of Germany. Although only at medium range these had consistently escaped lightly owing to their location in featureless country which prevented precise identification. Hanover (see Table No. 48) in particular

⁸ Allied planning was based on the assumption that Hagen was the main centre of this industry, but an unlisted industry of equal size actually existed in Hanover.

⁹ Sqn Ldr J. H. Trobe, DSO, DFC, 416468; 10 Sqn RAF. Clerk; of Berri, SA; b. Prospect, SA, 28 Jun 1913.

¹ F-O W. Mowatt, DFM, 413637; 10 Sqn RAF. Journalist; of Earlwood, NSW; b. Newcastle-on-Tyne, Eng, 7 Sep 1911.

² W Cdr R. Kingsford-Smith, DSO, DFC, 381. 467 Sqn; comd 463 Sqn 1943-44, 627 Sqn RAF 1945. Regular air force offr; of Wollstonecraft, NSW; b. Northwood, NSW, 14 Jul 1919.

³ F-Lt L. B. Patkin, 401146. 296 Sqn RAF, 467 Sqn. Departmental manager; of Hawthorn, Vic; b. Melbourne, 28 Sep 1913. Killed in action 2 Jan 1944.

gave a very unsatisfactory response on an H2S screen even for the most experienced radar operator, and although four heavy raids were made against this city, only one was really effective.

The first raid took place in clear weather conditions and R.A.A.F. crews reported that bombing was well concentrated round the target indicators and that there were huge palls of fire and smoke. Photographs taken by No. 467 during the raid revealed that despite this optimism, the majority of bombs from that squadron fell about seven miles away from the true aiming point and only the southern suburbs were hit at all. Nearly 200 searchlights silhouetted the bombers against cloud and there were many desperate struggles with fighters which on this occasion had not been misled by diversionary attacks on Oldenburg and Emden. Another batch of German fighters was sent to attack the returning bombers as they neared their own airfields. This disappointment was duplicated in the second raid. The Pathfinder markers were again misplaced, this time to the north, and again only fringe areas were damaged.

TABLE NO. 48

HANOVER

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Sep 22-23	716	658	460 467	20 10	20 10	2,357	25	2 —
Sep 27-28	683	599	460 467	19 16	18 15	2,196	38	1 —
Oct 8- 9	504	457	460 467	18 6	17 6	1,667	27	2 —
Oct 18-19	360	349	460 467	19 16	19 16	1,697	17	1 1

On 8th-9th October only six Lancasters of No. 467 Squadron were available as the aircraft had been dispersed to emergency landing fields on return the previous night from Stuttgart. Australian participation was thus relatively low in what proved to be a classic example of a really successful concentrated attack. Before the raid a message from the Air Officer Commanding-in-Chief, Bomber Command, was read to all crews directing attention to previous failures against this target and exhorting them to go to great pains. One large diversionary force of 104 aircraft went to Bremen and small groups of Mosquitos attacked Kastrop-Rauxel,

Berlin and Duren in order to disperse widely enemy fighters, which on previous raids had found it easy to reach Hanover because of its central position. The Pathfinders dropped flares and target indicators well placed in the centre of the city, and although a few were inevitably astray, the main bomber force, mindful of the appeal made to them, made sure that they attacked only the main markers. The important central area of Hanover between the principal railway station and the Machsee Lake (which had been roofed over and camouflaged) was almost completely devastated by fire. Sixty-two factories were damaged and fires were seen raging all night by Wing Commander Norman⁴ (No. 460 Squadron) who was shot down and captured during the raid. Flying Officer Caffyn,⁵ captain of the other R.A.A.F. Lancaster which failed to return, had got his crew away safely over Hanover when the aircraft was set afire by ground fire and fighter attack. After a vain attempt to fly to Holland, he was forced himself to bale out. He attempted to board a moving train bound for Bremen but was badly injured and captured soon afterwards. Another Lancaster piloted by Flight Sergeant Simpson⁶ collided over the target with an FW-190.⁷ A gaping hole was torn in the bomber and Simpson suffered severely during his return flight from the intensely cold wind which blew through the torn structure. Both his and his navigator's hands were frost-bitten.

TABLE NO. 49

KASSEL

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Oct 3- 4	540	501	460 467	13 14	12 14	1,544	24	— 1
Oct 22-23	569	486	460 467	19 15	19 14	1,824	42	— 1

Another raid ten nights later (the first night suitable for flying) was intended to ram home the advantage gained by this devastating stroke. It achieved little, however, although one northern suburb was well hit. Again the main difficulty was confused marking, as the Pathfinders began with

⁴ W Cdr R. A. Norman, DFC, 400102. 35 Sqn RAF; comd 460 Sqn 1943. Bank clerk; of Melbourne; b. Mildura, Vic, 3 Jul 1916.

⁵ F-O M. C. Caffyn, 409506; 460 Sqn. Police detective; of Melbourne; b. Maryborough, Vic, 13 Dec 1913. Died while POW 27 Oct 1943.

⁶ F-Lt A. B. Simpson, DFC, 408881. 467 Sqn, 511 Sqn RAF. Hotel manager; of Numurkah, Vic; b. Euroa, Vic, 23 Apr 1916.

⁷ Such incidents were almost certainly due to error rather than design on the part of German fighters although the German press referred frequently to so-called "ramming tactics".

ground target-indicators, switched to sky markers because of low cloud and then reverted to ground markers. Premature release by crews unable to assess the comparative value of the scattered flares, led to aggregate errors which soon centred the attack in open country back along the approach line of the bombers. In addition to aircraft shot down, five Australian Lancasters suffered nine separate fighter attacks but in each case escaped by good crew cooperation.

Second in importance to Hanover in this area, Kassel (see Table No. 49), a centre of locomotive, armoured vehicle, lorry and aircraft-engine production, was attacked in full strength twice during October 1943.

Haze prevented use of the ground-marking technique for the first raid and the sky markers drifted downwind so that most of the bombs actually fell outside the city to the east. Paradoxically it was the hasty, inexperienced crews which actually hit one south-east industrial area. There were few night fighters at the target due to a successful spoof raid on Hanover, where the Germans were waiting in force with their flares already laid. The bombers made a feint towards Hanover to increase the threat, but then swung south to Kassel. The secondary German tactics of feeding fighters into the bomber stream had more success, however, and many pilots criticised the Pathfinder route-marking flares as dangerous because they attracted the enemy to all turning points. Some crews also had difficulty in distinguishing between the intense light of white and green flares and they bombed incorrectly.

The raid on 22nd-23rd October was nearly spoiled by bad weather and severe icing which forced many bombers to turn back. However, most of them struggled on and were rewarded by fine weather over Kassel which permitted visual marking and the main bomb load, dropped in a record time of only twenty-two minutes (or one bomber every 2.7 seconds), hit the city squarely, devastating 615 out of the total built-up area of 960 acres. All three Henschel locomotive and tank factories were damaged, although the aircraft works escaped lightly. The main purpose of the attack was outstandingly successful, but it was relatively costly. The undue concentration over the target led to one R.A.A.F. Lancaster being hit and set on fire by incendiaries dropped from another aircraft, though luckily it survived not only this, but shell fire and two fighter attacks. A badly-timed diversionary raid had failed to keep night fighters away from Kassel and mingling inside the dense stream of bombers they had extremely favourable targets and pursued the bombers for over 100 miles on their return journey. Six R.A.A.F. Lancasters were attacked but again Australian losses were very light in comparison with the whole force.

Although, after the capitulation of Italy and the growing attack by Mediterranean Air Command against northern Italy, Bomber Command was no longer called upon for area attacks against Italian industrial cities, there remained a few special targets against which its techniques and bomb-carrying capacity were peculiarly effective. Such a target was Modane, the railway border town at the French end of the Mont Cenis tunnel, and on 16th-17th September many individual R.A.A.F. airmen took part in a

successful attack although the R.A.A.F. squadrons were not included in the force. As soon as the railway system had been repaired another force of 311 bombers attacked on 10th-11th November, and this time thirty-two R.A.A.F. Lancasters took part. The raid was virtually unopposed and not one bomber from the whole stream was lost; in bright moonlight a deliberate and wholly-successful attack resulted. No. 467 Squadron alone must have scarred the target badly, for fourteen out of its seventeen aircraft returned with photographs showing accurate releases against the aiming point. The international railway station was completely destroyed and the railway was still out of action a month later.

CHAPTER 23

THE HOLDING CAMPAIGN AT SEA, 1943-44

ALTHOUGH it was a matter of urgency for Coastal Command during 1943 to press almost all its resources into the struggle against German U-boats, the offensive corollary of striking at enemy trade routes was prosecuted whenever the opportunity or facilities existed. From the very restrictive position of 1939 when enemy warships at sea were the only legitimate targets for attack, repeated extensions of the "sink at sight areas" had by 1943 authorised the sinking of any German or German-controlled merchant shipping encountered from the North Cape to Cape Finisterre. Although conditions varied considerably it was realised that the protection of friendly lines of communication and the disruption of those of the enemy were militarily equally as vital in northern waters as they had already proved in the Mediterranean. The magnitude of the Allied defensive problem in the Atlantic overlaid but did not entirely distract attention from Germany's own very vulnerable sea communications, and it was lack neither of plans nor intentions but rather of means which prevented a full-scale counter-offensive. Even with limited means, however, much was accomplished by Coastal Command and sound foundations were made for rapid expansion of effort when greater forces should become available.

It will be remembered that in July 1941 Air Chief Marshal Joubert had stated that "the attack of shipping is a primary duty of Coastal Command's striking force" and had re-aligned his bomber and torpedo squadrons around the east and south coasts of Britain to increase pressure on the enemy. At the same time Bomber Command claimed that attacks against shipping were its sole prerogative and the issue was left undecided by a notation to the September 1941 directive to Coastal Command by which Bomber Command was to be primarily responsible for the area between Cherbourg and Texel, and Coastal Command for all other areas, although joint strikes in both areas were to be made when necessary. During the winter of 1941-42 the expected increase in Coastal Command's forces did not take place partly because of a shortage of aircraft and partly because existing squadrons were sacrificed to meet the needs of new theatres of war. Divided control of operations did not work well and, after the *Scharnhorst* and *Gneisenau* incident in February 1942, Coastal Command made a new attempt to organise anti-shipping activities on a sound basis. It pointed out in March that there were then no fewer than four air authorities engaged in this task: Fighter Command operated Hurricane-bombers in the Strait of Dover; No. 2 Group, Bomber Command, had a general licence between Cherbourg and the Heligoland Bight; Fleet Air Arm aircraft, nominally under Coastal Command direction but actually controlled by the Vice-Admiral, Dover, operated in the Strait; and Coastal Command itself. Accordingly a plea was made that, although the same agencies should be employed, the whole effort should be co-

ordinated by Coastal Command, which should further have the right to call on No. 2 Group both for reconnaissance and strikes outside the present limits of its own operations until Coastal Command could meet all requirements.

At this time Coastal Command shed its responsibility for mine-laying in favour of increased anti-shipping activity, but although Hudson squadrons made a brave showing in the North Sea during the second quarter of 1942, the forces available for the task declined rather than expanded. All four Beaufort torpedo-strike squadrons were ordered overseas before August 1942. There was no question that this was demanded by over-all strategy since in the Mediterranean, in particular, the assault on enemy shipping had a direct and immediate bearing on the outcome of current campaigns which in turn would have far-reaching effects on Allied sea communications. Undoubtedly, however, operations in home waters were thus closely conditioned by the availability of aircraft and trained crews.

Of the four well-defined areas where German shipping could be attacked—the Bay of Biscay, the English Channel, Hook of Holland to the Elbe Estuary, and the Norwegian coastline—the two former had lost much of their importance by the end of 1942. In the Bay dense anti-submarine patrols acted naturally as a bar to blockade runners, and although the enemy made a few isolated attempts to pass ships in or out of Bordeaux, his original plan of large-scale trading between France and Japan had been abandoned in favour of cargo-submarine traffic. Again the special iron-ore vessels previously trading between Spain and Bordeaux had mostly been withdrawn for service between Sweden and Rotterdam, leaving only small coast-hugging ships in the southern Bay. At the same time the appearance in No. 19 Group of Liberator and Halifax aircraft, equipped with the Mark XIV bombsight, gave ample striking power in emergency to Coastal Command without the retention of a specific anti-shipping force; and these replaced the Sunderlands which had hitherto necessarily borne the brunt of operations beyond the range of strike squadrons. In the English Channel limited movement of individual ships dodging from port to port under heavy air cover was still possible, but the fighter-bombers of Fighter Command denied any regular convoy sailings even on a small scale. It was thus to the Hook-Elbe and Norwegian routes that Coastal Command applied its resources and it was there that German defences were most in evidence. The vast dimensions of Germany's imports of Swedish and Norwegian iron ore engaged a very large fleet of shipping, and, as the iron was required principally in the Ruhr, transport to Rotterdam greatly relieved the strain on German railways, already hard pressed by air attack and the provision of locomotives for occupied areas in Russia. Return traffic was mostly coal and coke to Sweden and military supplies for Norway, all of which could again most conveniently be loaded at ports connected by canals to the Ruhr.

Germany had begun the war with ample shipping to maintain this trade, especially as Swedish dependence on coal imports resulted in 40 per cent of the ore being transported in neutral ships—so that during 1941 nearly

10,000,000 tons of iron ore were imported despite the attempts of No. 2 Group (Bomber Command) and Coastal Command to interfere. Large-scale mining by Bomber Command and the heroic low-level attacks of Hudson aircraft during 1942 had greatly reduced the number of ships available to Germany, and this, together with "invisible losses" due to longer turn round and delays while waiting for convoy or minesweepers, had resulted in a fall of ore imports to 8,800,000 tons.¹ Uneasily aware of the strategic implications of this decline, now that visions of a swift victory had faded, Hitler appointed in mid-1942 as Reichskommissar for Shipping, Karl Kaufman, who began energetic rationalising of existing facilities, the withdrawal of ships allocated to the German Navy and the institution of a program of emergency building in Dutch shipyards. At the same time more and more naval auxiliaries, heavily armed with anti-aircraft guns, were allotted to convoy the coastal ships while *Luftwaffe* resources were similarly sapped to provide air protection.

Except for the relentless and ever-increasing mining campaign of Bomber Command, German defences appeared by early 1943 to have secured an advantage. The Hudsons of Nos. 16 and 18 Groups Coastal Command had by then largely been withdrawn for employment in the Mediterranean, or the squadrons, re-armed on Fortress and Liberator aircraft, transferred to anti-submarine duties. Two Hudson squadrons remained in No. 16 Group, but could be employed only intermittently at night when their chances of real success were low. The torpedo-strike squadrons of Coastal Command were equipped mostly with obsolescent Hampden aircraft which could penetrate enemy areas by day only when there was ample cloud cover, and which, as yet unequipped with radar aids, were badly handicapped even on night operations. There had grown up, however, after very successful experiments in mid-1942 from Malta, the idea of a tactical strike wing, in which a squadron of fast torpedo bombers was accompanied by one or more squadrons of equal performance relying on cannon fire and bombs to subdue enemy anti-aircraft fire and able also in most instances to engage enemy fighters in the critical moments when the torpedo bombers made their deliberate straight and level approach. In September 1942 the Air Ministry agreed to nominate the Beaufighter as the standard Coastal Command strike aircraft and it was intended to have ten squadrons by April 1943. A strike wing on the Malta model had been formed in November 1942 by allying the one Beaufighter torpedo squadron to two Beaufighter "anti-flak" squadrons at North Coates in No. 16 Group. The first sortie of this formation during December, however, had miscarried badly and it was withdrawn for intensive training until April 1943. Its subsequent successes were manifest, but shortage of Beaufighters and the prior needs of campaigns in the Mediterranean prevented any immediate increase along these lines until the end of the year. Nevertheless, the threat of this one wing was large enough

¹ The actual losses in the North Sea, Baltic and Norwegian coast between 1 Jun and 30 Nov 1942 amounted to 227,575 BRT of German shipping plus 37 neutral ships aggregating 91,851 BRT. Total losses in all areas prior to 1 Jun 1942 were 1,660,472 BRT.—Extracted from "Report of Reichskommissar for Shipping".

to force the enemy to curtail drastically trade from Rotterdam and to route the iron ore and associated cargoes through Emden, out of reach of Coastal Command.

Only a handful of Australians served during 1943 on the Beaufighter squadrons or in the Wellington-Albacore formations which were created primarily to harass German E and R Boats operating in the English Channel. No. 455 Squadron R.A.A.F., however, continued to fly Hampden torpedo bombers from Leuchars, Scotland, until December 1943, when last of all the stopgaps, it re-armed on Beaufighters. The actual results, in terms of ships sunk, appear small in relation to the considerable effort needed to keep this squadron operational, but despite severe tactical limitations the Hampdens actually forced the enemy into passive and active defence precautions which imposed a severe strain on his ability to deploy forces to best advantage in other areas. In common with the other Hampden squadrons No. 455 was required frequently to engage in the more immediately pressing anti-U-boat campaign, but its value still remained in the potential threat which it constituted to enemy communications. Although the continued existence of No. 455 was twice in doubt at this stage, firstly because of Coastal Command's desire in October 1942 to absorb its ground staff into anti-submarine squadrons and then according to Air Marshal Williams' plan to withdraw Nos. 455, 462 and 464 to form part of an R.A.A.F. bomber group, it survived these crises.

The year 1943 began for No. 455 with rumours of a second expedition to Russia,² but these hopes slowly faded as, despite bad weather, a large number of operations were flown off southern Norway, beginning on 11th January 1943 when Squadron Leader J. N. Davenport³ led a sweep of twelve aircraft to patrol between Egero Island and Lister. One aircraft crashed on take off, a second returned early due to engine failure, and another crashed on return in remote country on the north side of Hill of Wirren in Angus. Six Hampdens were then sent on detachment to Wick on 15th January to relieve a flight of No. 489 Squadron R.N.Z.A.F., and from this base on 16th January three independent unsuccessful searches were made for enemy shipping in the "Leads" south of Rundo Island. Armed with bombs instead of torpedoes Davenport on 18th January led three other Hampdens in a low-level attack on an enemy destroyer⁴ after the force had made a daring penetration into Haro Fiord. Davenport's bombs straddled the target and Pilot Officer Storry⁵ scored a near miss. Three Hampdens from Wick again patrolled off The Naze on 22nd January and Storry secured a bomb hit on a small coastal vessel but most of the day sorties at this time found no shipping moving along the exposed coast where the enemy well knew our patrols were made.

² A plan to send to north Russia 32 Hampdens, 8 Photo Reco Spitfires and 6 Catalinas was drawn up, and an advanced party dispatched. The operation was cancelled when Soviet authorities refused to accept such a force on Russian soil unless they could assume full operational control.

³ W Cdr J. N. Davenport, DSO, DFC, GM, 403403; comd 455 Sqn 1943-44. Bank clerk; of Blakehurst, NSW; b. Rose Bay, NSW, 9 Jun 1920.

⁴ Identified by photographs as Norwegian.

⁵ F-Lt C. G. Storry, DFC, 404728; 455 Sqn. Printer's traveller; of Tugun, Qld; b. Featherston, NZ, 7 Apr 1916.

Night searches were difficult and on 23rd-24th January Davenport was the only one of four pilots to find any target when he attacked shipping dimly seen at anchor near Larvick. The whole squadron was alerted on 25th January when five Hampdens from Wick and six from Leuchars joined nine from No. 489 in a search for the *Scharnhorst* and *Prinz Eugen* which had been sighted moving northwards out of the Baltic. Before the Hampdens could make contact, however, the enemy ships discovered the presence of a shadowing reconnaissance aircraft and turned about. Although the immediate threat had been successful in forcing these vessels back to harbour the Australians were very disappointed that the chance to inflict major damage had been lost, especially as indeed happened, it was likely that the ships would later make a safe passage under cover of bad flying weather.

Some consolation came on 28th January when three Hampdens from Leuchars in company with four of No. 489 secured six torpedo hits on *Kaldnes*, a 3,500-ton Norwegian merchant ship, near Egero Island, and the vessel was seen to sink by one of the Beaufighters sent to give fighter protection. Flight Lieutenant Clarke,⁶ who had already on 27th January launched a torpedo against a chance-encountered U-boat, joined with Flight Lieutenant Humphrey⁷ three days later in a determined attack on a convoy of three ships near Lister but owing to the poor visibility no claims were made. On all duties a total of sixty-one sorties had been made for the loss of two aircraft, and with results which were encouraging for a winter month when Scandinavian sailings were normally restricted to a minimum.

On 6th February Wing Commander Lindeman handed over command of the very well-trained, offensively-minded No. 455 to Wing Commander Holmes⁸ who thus became the first Empire Air Training Scheme graduate to achieve this honour in Coastal Command. Two daylight and two night attacks were made on shipping at anchorage during February but no claims were made. Most of the thirty-six aircraft sent out on armed reconnaissance saw nothing, although on 21st February a Ju-88 attacked a formation of four aircraft operating in daylight west of Egersund only to be driven off damaged by the concerted fire of the Hampdens. Strict attention to gunnery was given in the ceaseless tactical training conducted by No. 455, for while attempts were made to give large forces of Hampdens an escort of Beaufighters, the disparity in speed and manoeuvrability of these two types made it impracticable to evolve a small composite force. Convoy-escort and air-sea rescue patrols interfered with offensive duties at the close of the month and the search for survivors from a sunken ship continued during the first three days of March. Thirty flights were made in atrocious weather without any mishap and although the search conditions were bad, Davenport reported a considerable amount of wreckage

⁶ Sqn Ldr A. H. G. Clarke, DFC, 400964. 455 and 32 Sqn. Audit clerk; of East Kew, Vic; b. Melbourne, 19 Aug 1920.

⁷ F-Lt M. S. Humphrey, DFC, 400473. 455, 14 and 7 Sqn. Bank clerk; of Caulfield, Vic; b. St Kilda, Vic, 11 Mar 1916.

⁸ W Cdr R. Holmes, 406356. Comd 455 Sqn 1943, 32 Sqn 1944-45, 13 Sqn 1945. Articled law clerk; of Perth, WA; b. Fremantle, WA, 30 Oct 1915.

and two occupied life-boats. From Leuchars, Wick and Sumburgh forty-nine flights were made into Norwegian waters despite ten days forced inaction in mid-March due to unfavourable weather, but the only two attacks on enemy shipping both came on 22nd-23rd March and were unsuccessful. April brought better flying weather but it entailed greater risks in the patrol area, as on 4th April, when after two aircraft had turned back because of the absence of cloud cover, Humphrey and one other continued searching and launched torpedoes at a large ship, only to be themselves attacked by a BV-138 flying-boat. Humphrey's aircraft was damaged and he himself wounded in both knees, but although outraged by the cannon armament of the enemy, both Hampdens were able to withdraw safely. Far more formidable reaction was evident on 12th April when four Hampdens and six Beaufighters were intercepted near Obrestad by two Me-109's and four FW-190's. A battle ensued for twenty-five minutes and one Beaufighter was shot down, but the Hampdens, although all damaged, finally escaped. The results of forty-one offensive sorties were again disappointing although a mixed force of Hampdens and Beaufighters raked with gun fire the decks of a 5,000-ton merchant ship and three escorts after a torpedo attack had failed on 21st April. Indeed, as mentioned earlier, the auxiliary defensive anti-submarine role of the squadron actually produced the main highlight when on the last day of the month Flight Sergeant Freeth sank *U227*.

On six occasions during May, involving nineteen aircraft, Australian sorties were ineffective owing to lack of cloud cover in the patrol areas, but with enemy shipping moving freely along the Norwegian coastline, the good weather brought compensations in the shape of greater possibilities for attack. Holmes, Davenport and Squadron Leader O'Connor⁹ ("B" Flight commander) were all keenly aware of the need for continuous realistic training to keep a torpedo-strike squadron always at the pitch of readiness required for instantaneous attack on a fleeting target, and by their constant example propagated a truly pugnacious spirit throughout the squadron, even though at this date Hampden operations were discounted by most outsiders. Training also had many hazards for on 17th May a Hampden crashed out of control during an exercise with naval units and a week later Freeth was killed in a collision with a Beaufighter while practising defensive tactics against fighter attack. These accidents, however, were overshadowed by the manner in which both Australian and English crews of No. 455 prosecuted the offensive in enemy waters. On 12th May Davenport and Flying Officer Atkinson¹ were hunting near Egero Island in poor visibility when they discovered an unescorted ship which they estimated to be of 2,500 tons.² Both aircraft made three

⁹ Sqn Ldr B. R. D. O'Connor, DFC, 404835, 455 and 32 Sqns. Bank clerk; of Murwillumbah, NSW; b. Brisbane, 5 Jul 1913.

¹ F-Lt B. Atkinson, 119121 RAF; 455 Sqn. Motor driver; of Scarborough, Yorks, Eng; b. Berwick, Northumb, Eng, 1 Aug 1916. Killed in action 6 May 1944.

² Enemy records now reveal that this was the German *Klaus Howaldt* of 5,956 tons. Accurate recognition of shipping and estimation of size from the air posed continual difficulties to aircrew especially in bad weather and in circumstances of attack. However, the usual tendency was to overestimate rather than underestimate tonnage.

approaches before the torpedoes were fired and at first they feared that the vessel had successfully turned away from the missiles, but as the aircraft circled they saw that one torpedo had exploded forward of the bridge on the starboard side, and as the decks became awash the crew took to life-boats. Two of three aircraft sent to patrol south of Mandal on the night of 15th-16th May also found worthwhile targets, one dropping bombs on a well-protected convoy while Humphrey aimed his torpedo at a large tanker in the centre of another heavily-escorted convoy creeping along the coast.³ On the next night five crews searched unavailingly for shipping but one Hampden aimed its bombs at the eastern end of Farsund bridge and caused a fire just south of the bridge itself. Four aircraft returned to the same area on the night of 17th-18th May and one scored near misses with bombs against a ship anchored at Farsund. Four more torpedo attacks were made by Australians before the end of the month but in no case was the result of the attack seen owing either to bad visibility or the necessity to avoid the ever-increasing fire from anti-aircraft escort ships—which rightly appeared to aircrews a true measure of the pressure they were in fact exerting on the enemy.

Large-scale exercises with the Home Fleet seriously reduced operational flying during June 1943 and only seventeen flights were made in Norwegian waters. On 2nd-3rd June Flying Officer Austin⁴ made a night torpedo attack but no further success came until the morning of 19th June when four Hampdens were operating between Stavanger and The Naze. Humphrey claimed a possible hit on a 3,000-ton ship. Flight Sergeant Hansen⁵ manoeuvred to attack a large vessel but finally torpedoed amidships "a 2,500-ton ship" which appeared out of the mist directly ahead. This ship was seen to be settling down by the stern with a spiral of thick black smoke rising from it. At almost the same time Clarke was attacking a 2,000-ton ship in the face of intense small-calibre gun fire, and although his Hampden was extensively damaged as it swept over the ship, the rear gunner reported a blinding red flash which completely obscured the vessel half a minute after the torpedo had been released.⁶

No. 455 Squadron was thus at the peak of its effectiveness when on 21st June twelve crews were grounded at the end of their first tour of operations.⁷ There were no Australian replacements available because the only operational training unit still training crews for Hampdens was in Canada, and even these crews had no torpedo experience. The squadron was thus almost non-operational until 7th July when permission was

³ There is no record of any enemy ships damaged at this time and place.

⁴ F-O W. Austin, 402841; 455 Sqn. Station overseer; of Ivanhoe, NSW; b. Strood, Eng, 11 Nov 1912. Killed in action 14 Sep 1943.

⁵ F-Lt H. O. Hansen, 411776; 455 Sqn. Clerk; of Manly, NSW; b. Orange, NSW, 24 Dec 1918.

⁶ The only success in fact was the sinking of the German escort trawler *Roland* (UJ1708) of 468 tons. This vessel was torpedoed and was most probably the target attacked by Hansen despite the discrepancy in description.

⁷ The duration of operational tours varied widely with the function of aircrew, being sometimes assessed on sorties flown and sometimes on a time basis. Owing to the strain of torpedo-strike activity it was held to be unwise to retain crews on operations longer than 12 months without a rest.

received for the grounded crews to continue flying until replacements could be secured. As if giving thanks for this temporary reprieve, fifteen Hampdens scoured the Egero area that day, unfortunately without result, although O'Connor had a brush with two Me-109 fighters. A moderate effort was sustained during the rest of the month but twelve aircraft had to abandon day searches at various times owing to lack of cover and one Hampden failed to return. Necessarily a large retraining program was being pressed for the freshmen crews and although only 228 hours were flown on operations, 662 flying hours were spent on training during July, while the experienced pilots also gave ground instruction in tactics and operational intelligence. The comparative lull in activity ended on 2nd August when three Hampdens attacked two heavily-defended ships near Lister. Two torpedoes failed to release, possibly due to shell hits in the bombing gear, but the third caused an explosion alongside the larger ship.⁸ Ten Hampdens were detached to Benbecula on 5th August to conduct anti-submarine patrols, three aircraft flying that day over the Faeroe-Shetlands channel and landing at Reykjavik in Iceland, returning to Wick the following day after a similar patrol. The Benbecula detachment was cancelled on 8th August when six junior crews were sent to Tain for specific torpedo-strike training, while the other crews turned once more to their old Norwegian hunting grounds, attempting in all fifty sorties in that area for the disappointing result of one bombing and one torpedo attack.

The veteran crews were finally withdrawn from operations at the beginning of September when Air Vice-Marshal Wrigley (Air Officer Commanding Overseas Headquarters) reluctantly accepted the position that in order to keep No. 455 in the front line it would be necessary to feed in any available crews regardless of nationality. In a conference with the Director-General of Postings R.A.F., however, Wrigley made quite plain the Australian desire that, by the time the long overdue re-arming with Beaufighters was effected, twenty-four complete R.A.A.F. crews would be available. It was inevitable, however, that the weakened No. 455, even though the new crews were technically well trained, could operate only cautiously in danger areas where previously crews had gone confident in their own experience. The first two weeks of September were spent in air-sea rescue duties and in dispersing Danish fishing fleets operating in forbidden areas of the North Sea. Training exercises occupied the latter half of the month although on three occasions formations of six Hampdens swept the Lister area without result and on 28th September the whole squadron prepared to attack the "pocket-battleship" *Lutzow* (previously named *Deutschland*) which was thought to be moving southwards towards the Baltic. This emergency passed and nine aircraft were sent to northern Scotland for anti-submarine patrols, flying twenty-two uneventful sorties before they were withdrawn to Leuchars on 11th October. A fortnight of extremely bad weather then prevented any operations and six crews

⁸ No vessels were sunk or damaged in this attack according to enemy records.

which searched between Lister and Egero Island on 25th October found no targets.

Holmes and O'Connor had remained with No. 455 to complete the training of the new crews, and with the arrival late in October of two very experienced pilots, Squadron Leader Wiggins and Flight Lieutenant Pilcher,⁹ it was again possible to pass from defensive to offensive duties. All of the thirty-nine flights made during November were day and night armed reconnaissances off the Norwegian coast, which, although they resulted in no action, instilled confidence in the crews. It was, however, with great rejoicing that pilots learnt on 19th November that the long-promised Beaufighters would be available in December. Davenport rejoined No. 455 late in November and on 5th December he took over command from Holmes who had been posted to Australia. A few uneventful flights were made before the squadron officially became non-operational on 13th December but all thoughts were already on the future. No. 455 was to form the anti-flak component of a new strike wing in which No. 489 R.N.Z.A.F. was to be the actual torpedo force. Twenty-four wireless-operator navigators arrived early in December and although unfortunately not one of these was an Australian, they allowed immediate training to commence. Davenport, in addition to his reputation for skill and fearlessness on operations, possessed clear, popular and efficient administrative qualities which made the task of conversion swift and trouble free. His enthusiasm and positive thinking quickly contrived to get the very best from both his ground and air crews.

While Coastal Command's anti-shipping offensive tapered off through lack of suitable aircraft in August 1943, an uneasy quiet fell on the U-boat warfare in the Bay of Biscay and the Atlantic Ocean. Although decimated and tactically outmanoeuvred during the summer battles, the U-boat fleet was still numerically large, and was indeed the one offensive arm with which Germany could hope to gain resounding successes to offset the defeats in Russia and the Mediterranean, and the mounting scale of the Anglo-American bombing offensive. It was clear that for political as well as military reasons Grand Admiral Doenitz would make great efforts to renew his U-boat offensive as soon as possible, if only to keep vast numbers of aircraft tied down to defensive duties in all oceans and thus unavailable to join in the direct attack on Germany. For its part, Coastal Command, having won the upper hand, attempted at least by continual harrying to prevent any resurgence of the morale of German submarine crews. The planned "Derange" and "Seaslug" Biscay patrols were continued at full pressure until 22nd August, although only three U-boats were sighted, due to the extremely cautious progress of the enemy craft which ran submerged by day and proceeded close to the Spanish shore, sometimes within territorial waters. To meet this development a new series of air patrols ("Percussion") began off the Spanish coast on 23rd August,

⁹ Sqn Ldr J. M. Pilcher, DFC, 402880. 70 Sqn RAF, 458 and 455 Sqn. Grazier; of Thallon, Qld; b. Burwood, NSW, 5 Oct 1915.

again with cooperation from naval hunting groups, and with the added assistance of British and American squadrons based at Gibraltar and in Morocco. The new patrols led to no immediate increase in sightings, however, and August ended with the Germans making little attempt to attack Allied shipping but also studiously avoiding giving ships and aircraft the opportunity to destroy U-boats. Statistically the month was the best so far recorded for the Allies with only 160,000 tons of shipping lost from all causes (U-boat attack, bombing, marine losses) while in very widely scattered areas twenty-five U-boats were destroyed in return for only twenty ships sunk by the whole U-boat fleet. For individual aircrew, however, the turn of events was less palatable, for without the chance of striking at the enemy, the maintenance of an ever-denser blockade of hostile waters demanded even more watchfulness, more meticulous navigation and greater risks from weather and enemy aircraft on lengthening patrols, which brought only the passive satisfaction of imposing greater operational discomfort on the crews of U-boats.

After 6th August the only incidents reported by Australians on Biscay patrols were combats with enemy aircraft which attempted unavailingly to break the Allied stranglehold. This intensification of enemy fighter activity was sufficiently strong to demand the transfer of two Beaufighter squadrons from No. 18 Group, and increased assistance from No. 10 Group, Fighter Command, to cover the anti-U-boat patrols, but the main brunt inevitably fell on the individual aircraft crews themselves. Flight Lieutenant Gerrard of No. 10 was attacked by six Ju-88's in the far south of the Bay on 8th August, but escaped with minor damage; three days later he failed to return from a similar patrol. Flight Lieutenant P. R. Davenport¹ of No. 461 was intercepted on 14th August by the now familiar formation of six Ju-88's and before he could reach cloud the Sunderland had been heavily damaged by explosive cannon fire, one gunner was dead and the wireless operator wounded. Davenport flew inside cloud for fifteen minutes, with no instruments to guide him, and by constantly altering course drew away from his pursuers and made a successful forced landing at the Scilly Isles. Flying Officer Gaston of No. 86 had relatively little difficulty in beating off two Ju-88's which attempted to attack his Liberator early on 25th August. But escapes and even successes against the enemy fighters could not conceal the fighters' importance in the tactical situation. Flying Officer Dowling of No. 461, leading the gallant crew which under Flight Lieutenant Walker had won the heroic struggle against eight Ju-88's on 2nd June, failed to return from patrol on 13th August after reporting enemy fighters approaching his Sunderland. Aircraft captained by Flight Lieutenant Skinner of No. 10 and Flying Officer Croft² of No. 461 were lost in similar circumstances on 18th and 30th August respectively.

The urgent necessity of increasing the fire power of Sunderland aircraft led to a conference at Headquarters, Coastal Command, on 20th August

¹ Sqn Ldr P. R. Davenport, 403216. 461 Sqn, 235 Sqn RAF. Wool buyer; of Blakehurst, NSW; b. Sydney, 17 May 1918.

² F-O C. R. Croft, 403648; 461 Sqn. District offr N Guinea; of Newcastle, NSW; b. Newcastle, 22 Jun 1912. Killed in action 30 Aug 1943.

to review proposals submitted by individual squadrons. Further conferences followed at Pembroke Dock on 3rd September and at Mount Batten on 8th October when the final decisions for universal fitting were confined to important modifications developed by Nos. 10 and 461. These included the four fixed nose guns installed by No. 10; the FN5 twin-gun, belt-fed nose turret and the galley-hatch guns developed by No. 461. The superiority of the Australian projects lay in that they met not only the immediate need of self defence against fighter attack but also were an important offensive means against the main enemy, the U-boat, and thus were a valuable addition to Sunderlands in all theatres. The four fixed bow guns not only gave automatic smothering fire but also allowed the pilot to eliminate line error³ when carrying out a depth-charge attack while at the same time these guns did not prevent, as did other suggested modifications, the fitting of the new Mark III low-level bombsight on which great hopes were laid for future attacks on U-boats.

While the *Luftwaffe* achieved only moderate success against Coastal Command aircraft during August, it produced a dramatic answer to the naval blockade of the Bay of Biscay. During the early afternoon of 25th August a mixed force of some eighteen Do-217's and Ju-88's approached the 40th Escort Group and made four abortive attacks against H.M.S. *Landguard* (previously a U.S. Coast Guard cutter) with radio-controlled glider-bombs.⁴ Two days later these novel weapons achieved greater success, when the sloop *Egret* was hit and sank almost immediately, while the Canadian destroyer *Athabaskan* was damaged. Despite this very serious threat to the safety of vessels cooperating in "Percussion" patrols, the escort groups continued to patrol the area until mid-September when they were withdrawn to the northern convoy routes. Doenitz also at this time used his increasing influence with Hitler to employ still more *Luftwaffe* resources in the sea battle despite the luke-warm attitude of Goering. All available long-range Ju-290 and He-177 aircraft were re-deployed to search for Gibraltar and trans-Atlantic convoys so that U-boats and FW-200 bombers could make surprise attacks and themselves run minimum risks while searching or lying in wait on the convoy routes.

All indications thus pointed to a recrudescence of U-boat attacks on convoys probably timed for the new moon period in mid-September, but Coastal Command had no intention of easing the enemy task of marshalling his forces by any premature relaxation of flying over the transit routes, however unprofitable it appeared in terms of destruction of U-boats. Although flying was cancelled on thirteen nights and one day, No. 19 Group aircraft flew a record of 11,500 hours during September, the two R.A.A.F.

³ Bullet strikes on the water gave a similar effect to tracer bullets and the pilot was thus able to orientate himself accurately in relation to his target.

⁴ The Henschel 293 jet-propelled, radio-controlled bomb normally carried by Do-217 aircraft was designed primarily for use against merchant shipping. The forward portion was a normal 500-kg S C bomb attached to an extension tube housing the control mechanism and tail unit with the jet unit suspended beneath this fuselage. Two vertical fins and a tail plane gave stability in flight. When the rocket was released from its parent aircraft, the rocket propulsion operated automatically and after dropping 100 feet the Hs-293 began flying at about 400 m.p.h. and could then be guided visually by a bomb aimer using a remote control apparatus. Wing span 11 ft. Wing area 26 sq-ft. Tail plane 3 ft 8 in.

Sunderland squadrons accounting for 1,285 hours. This formidable effort resulted in a mere eighteen sightings of U-boats and the only Australians fortunate enough to make positive contact with the enemy were those flying with No. 179 (Wellington Leigh light) Squadron based at Gibraltar. Flying Officer Senior⁵ was wireless operator of a crew which had already on 24th August sunk *U134* off Cape Finisterre and which now made damaging attacks in the same area on 3rd and 6th September. Flight Sergeant Dix⁶ of the same squadron made attacks on 9th and 24th September, although in the second instance his bomb doors were damaged by enemy gun fire and the depth-charges failed to release. The obviously greater opportunities for night attacks led to a swift conversion of other Wellington squadrons to these duties, and intensification of effort to equip Catalinas and Liberators with the Leigh light. As an interim measure on 29th September the "Percussion" patrol areas were again re-aligned in accordance with the "ribbon barrier" policy,⁷ and the night-searching force included all Leigh-light aircraft, three Sunderland squadrons together with a proportion of the effort of Halifax and Liberator units. The primary function of Nos. 10 and 461 in this scheme was to help to saturate the area, force U-boats to dive and thus offer opportunity for attack by day patrols when they resurfaced. The R.A.A.F. pilots were to make the best attack they could in prevailing circumstances, but it was even more important that they should report accurately the position and course of any U-boat seen, so that it could be hunted by other aircraft better equipped with night-flying aids.

Before this change of policy Nos. 10 and 461 maintained day patrols unrelieved by any incident except the struggle with the *Luftwaffe*. On most occasions the Australians followed emergency tactical instructions and moved their patrols westward when enemy fighters were seen, but this prudence did not always spell safety. Flight Lieutenant Marrows of No. 461 met six Ju-88's on 16th September and after a running battle lasting forty-five minutes the Sunderland had only one engine and one gun turret still functioning, so Marrows had to make a forced landing in a twelve-foot sea. This magnificent feat of airmanship ended happily, for the entire crew was rescued next day by the 2nd Escort Group.

Not so fortunate, however, was a Sunderland of No. 10 which on 21st September transmitted an incomplete combat report and then failed to return to Mount Batten. A wide search for this aircraft revealed no trace of survivors, although earlier in the month both Australian squadrons had spent an appreciable number of patrols in successful air-sea rescue opera-

⁵ F-Lt R. K. Senior, DFC, 408706; 179 Sqn RAF. School teacher; of Surrey Hills, Vic; b. Williamstown, Vic, 11 Apr 1915.

⁶ F-Lt R. W. Dix, 401776. 502 and 179 Sqn RAF. Jeweller; of West Brunswick, Vic; b. Melbourne, 28 May 1917.

⁷ The "barrier" depended on several factors. A U-boat could travel a certain distance in 24 hrs, the distance varying as to the proportion of time surfaced and submerged; whether it ran surfaced by day and submerged by night, or whether it remained entirely submerged except for the 4 or 5 hours in every 24 when it must surface to renew air supply and batteries. This latter was the current policy and a U-boat would thus average 3 knots for 20 hrs submerged plus 10 knots for 4 hrs surfaced—a daily advance of 115 miles along track. If sufficient aircraft could patrol constantly an area 115 miles wide athwart the U-boat transit paths, an opportunity must thus arise to attack every submarine on passage.

tions for other airmen lost in similar circumstances. In each case the final rescue was effected by naval vessels directed to the scene after intervals varying from a few hours to several days, during which time the Sunderlands kept in continuous contact with the dinghies. Another incidental duty which fell to the Australians in September was to attack fishing vessels which repeatedly defied warnings to keep clear of the vital patrol areas. The necessity of this action was regretted by all and certainly by the aircrews, who aimed their depth-charges well clear of the fishing vessels, or shot through the sails and rigging only, but it was more than ever vital under existing circumstances to have the areas searched at night free from any traffic except U-boats.⁸

The anticipated resumption of U-boat pack operations came on 19th September when nearly twenty U-boats closed in on convoys ONS-18 and ON-202 routed close together in mid-Atlantic. The Germans achieved tactical surprise by the introduction of a new acoustic torpedo which homed automatically on the noise of a ship's propellers. Doenitz hoped to overcome the very powerful naval and air defences of convoys with a new technique. "The boats were ordered to remain on the surface when attacked by enemy aircraft and cooperate in fighting off the attack. They were to attack and break up the destroyer screen with acoustic torpedoes and in the third phase of the battle attack the convoy now deprived of its protection." This plan succeeded in the initial attack insofar as the U-boats managed to remain surfaced despite limited air attack, and in the second phase sank three and disabled a fourth escort vessel. Only six out of sixty-five merchant vessels were sunk, however, in five nights before naval escorts transferred from the Bay and Liberators re-deployed to Iceland forced the U-boats to lose contact. Although two U-boats were sunk by Liberators and one by the destroyer H.M.S. *Keppel*, this minor victory for the enemy had serious implications especially as shipments of American troops and supplies to England in preparation for the assault on German-occupied Europe were attaining their peak. The obvious counter-measures included further redistribution of the air resources of No. 15 Group, so that Australians who had been patiently but uneventfully patrolling the Shetlands-Faeroes transit route,⁹ now found themselves back in the grim but spectacular conditions and areas of the previous spring battles. Moreover a great diplomatic and strategic victory came on 8th October when Portugal gave permission to the Allies to build an anti-submarine base in the Azores Islands. Hudsons from Gibraltar and Nos. 206 and 220 (Flying Fortress) Squadrons from No. 19 Group were already operating from Terceira by the end of the month under the control of No. 247 Group, Coastal Command. Air cover by either shore-based or carrier-

⁸ Operational Research Section estimated that the presence of fishing boats in the search area entailed a loss of 10% of the night air effort.

⁹ In Jun 1943 *Catpaw I* and *II* were instituted and were designed to be equal in width to the channel used by U-boats and to be greater in length than the distances they could travel submerged in any 24-hr period. By coordination No. 18 Gp at Iceland provided 5 sorties to be flown in cooperation with destroyers of Home Fleet. For the expected seasonal increase of U-boat passage between Jul and Sep "Moorings", an area 120 miles square, was designated to establish as difficult a barrier as possible in the prevailing conditions of "no darkness". These patrols were not as efficient as had been hoped and "Moorings" was cancelled in Nov.

borne aircraft was now possible over all the North Atlantic north of latitude 30 degrees north and this permitted wide scope in the routing of convoys, of tremendous importance in evading U-boats, especially as despite all efforts, *Luftwaffe* reconnaissance on behalf of the German Navy remained ineffective beyond relatively short range.¹

Before No. 247 Group was ready for operations, the Germans had made their attempt to block the main northern convoy route, a large pack assembling south of Iceland to await a convoy which left Nova Scotia on 28th September. These waiting U-boats were severely harassed from the air and two were sunk on 4th October, while a third, *U389*, was destroyed next day by Flight Sergeant Allsop² of No. 269 Squadron. Allsop was piloting a Hudson aircraft which had been modified to carry 60-lb rocket projectiles instead of depth-charges and attacked immediately when he found the submarine fully surfaced south-west of Iceland. He dived through a considerable barrage of small-calibre cannon fire and at 800 yards' range fired one pair of rockets which seemed to unnerve the enemy gunners. As he closed on the enemy Allsop fired his other three pairs of rockets, all of which scored hits above or below the waterline. The U-boat attempted to zigzag but stopped with its entire forward half enveloped in light blue smoke. Shortly afterwards the stern rose high in the air and the hull slid under water.

These three successes were all gained before the convoy reached the danger area, and strong air and naval escorts prevented the enemy from gaining contact until the early hours of 8th October when the Polish destroyer *Orkan* was torpedoed and sank stern first. Five Liberators and four Sunderlands gave close escort to the convoy throughout daylight hours on 8th October and effectively prevented the U-boats from proceeding any further with their obvious plan to dispose of the escorts and then sink the merchantmen at leisure. Flying Officer Webb and Warrant Officer Craine³ were the navigator and wireless operator of R/86, the first Liberator patrolling at visibility distance round the convoy, when shortly before 9 a.m. Craine reported a wake six miles on the starboard bow. The captain made an immediate but unsuccessful attack twelve seconds after the U-boat dived, and was then ordered by the senior naval officer to resume patrol.⁴ The Liberator returned to this position an hour later and again caught the U-boat surfaced, this time sinking it with the two remaining depth-charges. Three destroyers arrived at 10.20 a.m. to pick up the sole German survivor who confirmed that both attacks had in fact been made against the same submarine (*U419*).

¹ Doenitz had prevailed in securing BV-222, Ju-290 and He-177 aircraft, all very-long-range types, but he could not train efficient crews. Similar though smaller difficulties in relation to navigation, search, ship recognition and reporting procedure had earlier been experienced by Coastal Cd when RAF sqns trained for bombing duties had temporarily joined in the war at sea.

² F-Lt G. C. Allsop, DFM, 408945. 269 Sqn RAF, 23 and 25 Sqns SAAF. Salesman; of Werribee, Vic; b. Werribee, 16 Nov 1920.

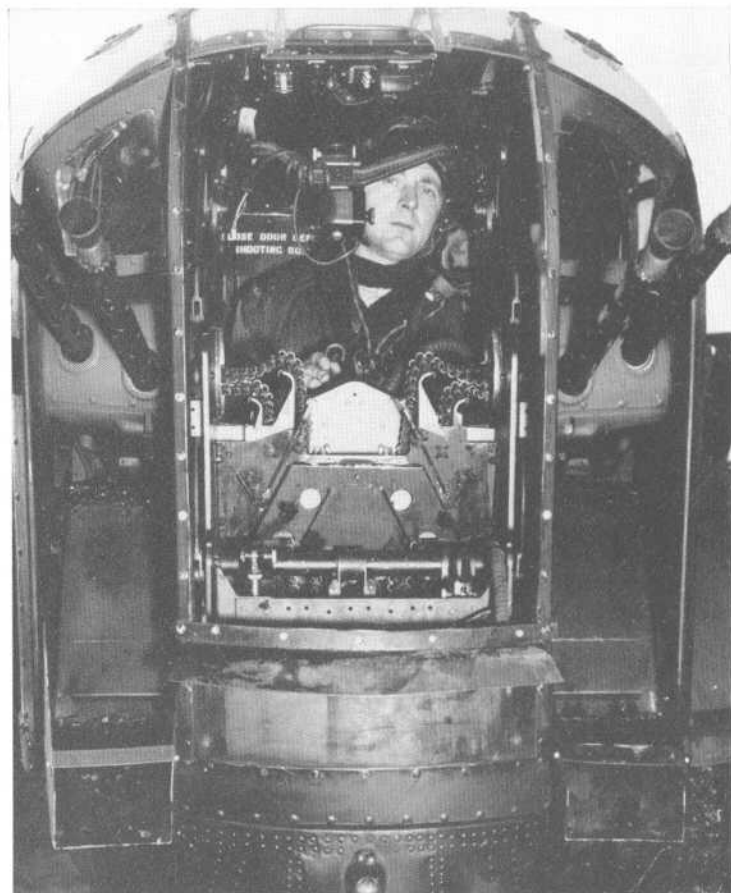
³ F-O A. R. Craine, 404496. 220, 86 and 224 Sqns RAF. Bacon curer; of Lismore, NSW; b. Lismore, 16 Feb 1914. Killed in action 12 Aug 1944.

⁴ The SNO was in charge of the over-all defence of each convoy. Aircraft reported on arrival and were given specific patrol patterns to fly.



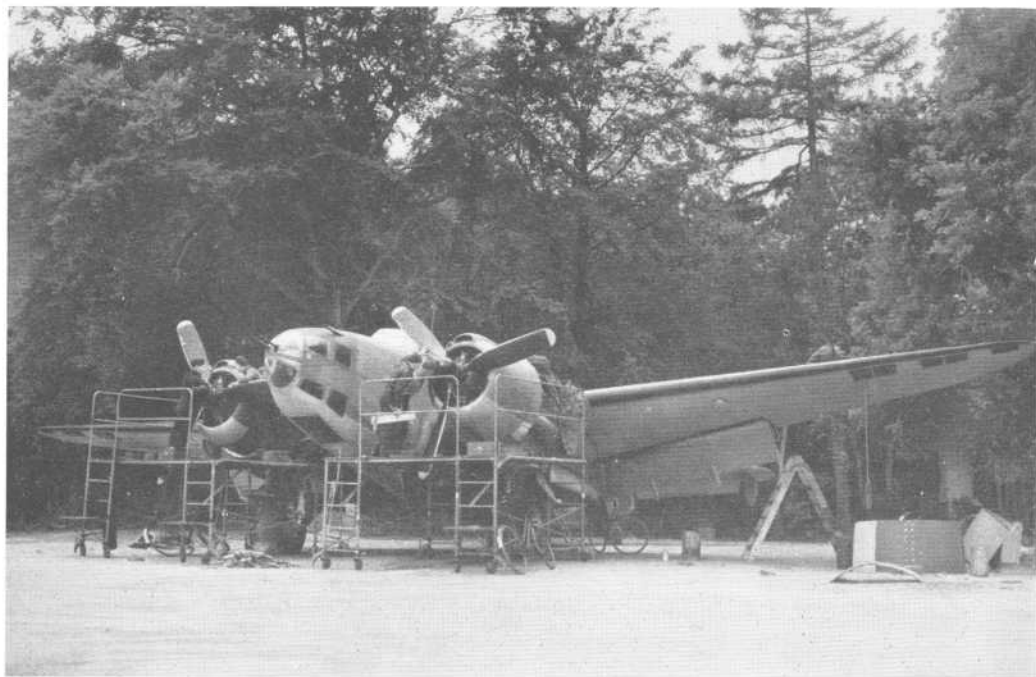
(R.A.A.F.)

On 8th January 1944 machine-gun fire from a Sunderland of No. 10 Squadron, captained by F-O J. P. Roberts, silenced the battery of one 30-mm and four 20-mm guns on *U426*, a 500-ton boat which is sinking by the stern after the initial depth-charge attack. A German gunner floats in the sea.



(R.A.A.F.)

By 1943 the importance of gunners was fully, albeit belatedly, realised by both Bomber and Coastal Commands. Here F-O E. H. Giersch, an experienced air gunner, is in a four-gun (.303-in) Nash and Thompson hydraulically-operated rear turret of a No. 463 Squadron Lancaster. Giersch has removed the central plastic panel which, although exposing the occupant to intense cold, gives a much clearer view.



(R.A.A.F.)

At Methwold airfield, Norfolk, Australian mechanics of No. 464 Squadron inspect the engines of a Ventura bomber.



(R.A.A.F.)

A ground crew of No. 467 Squadron replace a Lancaster's wheel. Left to right: Sgt B. R. Dalby; AC1 F. A. Holland (R.A.F.); Cpl J. K. Fussell.



(R.A.A.F.)

Air Chief Marshal Sir Arthur Harris, air officer commanding-in-chief, Bomber Command, visiting R.A.F. Station Binbrook (where No. 460 Squadron was located), in September 1943. He is followed by Air Vice-Marshall E. A. B. Rice, commander of No. 1 Group and the commander of Binbrook, Group Captain H. I. Edwards, V.C.



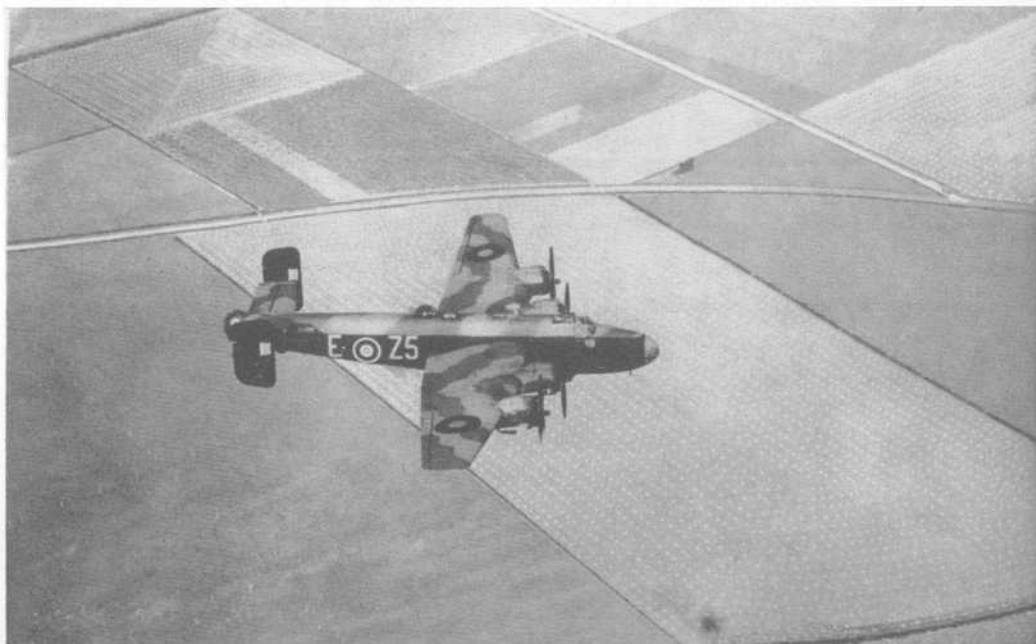
(R.A.A.F.)

By 1943 some Empire Air Scheme graduates were commanding squadrons. At No. 460 Squadron in September 1943, left to right: Sqn Ldr K. D. Baird (flight commander); W Cdr R. A. Norman (commanding officer); Sqn Ldr F. A. Arthur (flight commander). Norman was shot down and captured on 8th October and his place was taken by Arthur, who thus became the first Australian navigator to command a squadron.



(R.A.A.F.)

A Lancaster of No. 460 Squadron. Beneath the mid-upper turret is the dome-like housing for the revolving aerial of the H2S equipment. The rear turret is turned completely to starboard.



(R.A.A.F.)

A Halifax (Mark III) of No. 466 Squadron over English farmland. Superficially the Lancaster and the Halifax were alike, representing the solution of two different designers to a specification prepared by the Air Ministry in the late 'thirties. Compared with the Lancaster, for instance, the Halifax Mark III had Bristol Hercules radial engines instead of Rolls Royce Merlins; a four-gun mid-upper turret instead of a two-gun; and the Halifax did not carry a nose turret. In all-round performance the Lancaster was superior to the Halifax.

Webb and Craine had further excitement after resuming patrol for, at 11.10 a.m. another U-boat was discovered, and while R/86 circled and engaged the enemy with gun fire, Z/86 captained by Flying Officer Burcher was homed to this position, some thirty miles astern of the convoy. Immediately the second Liberator appeared the enemy dived and Burcher's attack, made twenty-seven seconds after the target submerged, failed to inflict damage. The position was marked, however, and again "baiting procedure" was adopted, so that when Burcher returned an hour later the U-boat had unwisely surfaced once more (in an effort to keep in contact with the convoy) and was already under attack from another Liberator (T/120). Twenty seconds later Burcher ran in at right angles to the enemy's course, and although all available guns were quickly turned against him, he dropped his depth-charges accurately across the U-boat. As he circled to observe results T/120 made a further damaging attack, and both Liberators then made four approaches to machine-gun the U-boat, which had hove-to, listing and badly down by the bows. When Burcher was forced to break off and return to base, the U-boat crew were huddled with dinghies and life jackets on the deck of their sinking vessel, but T/120 remained long enough to see *U643* rent by a terrific internal explosion forward of the conning tower, after which it sank immediately. Further air attacks near SC-143 on the same day led to the sinking of a third U-boat, and, after the loss of a solitary merchant vessel at dawn the next morning, the convoy reached England on 11th October without further enemy attacks.

The first ten days of October thus cost the German Navy six U-boats in return for one destroyer and one merchantman, but nevertheless a strong pack assembled in the path of ON-206, a convoy of fifty-six vessels with seven escort ships which entered the danger area south of Iceland late on 15th October, at the same time as a second convoy ONS-20 which lay sixty miles to the south. Again close air cover was provided for both convoys commencing at dawn on 16th October and aircraft were soon attacking U-boats stationed on the fringes of the convoys. Two U-boats were sunk during the morning and the same evening Pilot Officer Loney⁵ of No. 59 joined two Liberators of No. 120 in a protracted engagement which ended in the destruction of *U470*. Late that night a merchant ship straggling astern of the convoy was torpedoed but this was the only enemy success. The U-boats hung grimly on to the slower ONS-20 even though three more of their number were destroyed by air and surface attack on 17th October, but failed to close within striking distance and withdrew two days later. In other air operations during the month in defence of North Atlantic convoy routes a further eight U-boats were sunk, making a total for that area of twenty out of the twenty-six U-boats lost in all waters. Doenitz realised that the premise of U-boats remaining surfaced and beating off air attack had been unwarrantably optimistic and that once more it would be necessary to withdraw from the North Atlantic. "It was

⁵ F-Lt W. G. Loney, DFC, 400279; 59 Sqn. Clerk; of Carnegie, Vic; b. Rutherglen, Vic, 12 Nov 1921.

therefore finally clear that surface warfare for U-boats had come to an end. It was now a matter of filling in time till the new types should be ready for action.”⁶

The revised “Percussion” patrols were meanwhile proving no more effective than previously for although Nos. 10 and 461 flew 1,058 hours on operations during October they made no sightings. To lengthen time spent in the patrol area proper the duration of each Sunderland sortie was increased to thirteen hours by a reduction in depth-charges from eight to five,⁷ but carrying only radar aids well known to the enemy, the Sunderlands were at best acting in a “scarecrow” role. Six of the seven attacks on U-boats actually made in the “Percussion” area during October were by Leigh-light Wellingtons and none was finally successful although on 8th October Pilot Officer Paynter⁸ of No. 612 Squadron illuminated and straddled with six depth-charges a fully-surfaced U-boat which fought back desperately with multiple anti-aircraft guns.

These Wellingtons were the only type capable of efficient night patrols at this time, but their range and endurance were relatively low. The virtual stalemate between radar-search and radar-assisted evasion thus continued in the Bay⁹ and with deteriorating weather, interference from enemy fighters slackened considerably, although one Sunderland of No. 10 failed to return from patrol on 2nd October. This lack of positive success was far from welcome to the aircrews and they accordingly entered keenly into a renewed drive for training. No. 461 made over seventy flights during October to increase crew efficiency in bombing and gunnery while on 6th October a radar homing buoy was made available in St Bride’s Bay for special training in mock attacks. This buoy produced a radar pulse simulating a U-boat and all night-flying squadrons made extensive use of this facility until the end of the war. No. 10 which, in addition to having an autonomous maintenance section, also trained completely all its operational crews, brought into use at this time a synthetic procedure training device constructed during leisure hours by Flight Lieutenant Gillies, and this proved especially valuable in keeping navigators and wireless operators conversant with the ever-changing and ever-complicated operational procedures. There was certainly no apathy but only a sense of frustration among crews who looked forward confidently to the time when further opportunities to attack would certainly arise.

Conditions hardly changed over the Bay during November, however, for although the “Percussion” patrols were again moved to more favourable areas only eight U-boats were sighted—an average effort of 1,240 hours

⁶ This attack against ONS-20 was the last attempt against a trans-Atlantic convoy. Doenitz made a last effort to revive convoy war in Nov 1943 when he concentrated a large pack against a convoy north-bound between the Azores and Portugal. Surface and air escort (in particular night air escort) held the U-boats off and inflicted casualties with no loss to the convoy. This reverse finally convinced Doenitz that the day of the wolf pack was over.

⁷ In the case of 10 Sqn which always removed the unused trailing-edge tanks, 6 DC’s could still be carried—a stick more acceptable to the pilot.

⁸ F-Lt M. H. Paynter, DFC, 407752. 58 and 612 Sqns RAF. Commercial traveller; of Westbourne Park, SA; b. Westbourne Park, 14 Mar 1918.

⁹ The U-boat traffic through the Bay was 62 passages during Sep and 67 during Oct.

on patrol for each sighting, although the sinking of two U-boats did mitigate the expenditure of such a tremendous effort. The Australian contribution was somewhat curtailed as No. 10 had three crews absent undergoing special radar courses but the Sunderland patrols whether by night or on the new dawn sweeps encountered nothing except appalling weather and enemy fighters. On 9th November Flying Officer Dobson¹ of No. 461 sustained nine attacks by four Ju-88's before he had withdrawn some seventy miles to the westward and the enemy abandoned the chase.

At the very end of the month Flight Lieutenant Clark² of No. 10 had been on patrol for nine hours when he was surrounded by six Ju-88's with the nearest cloud cover at least twenty miles distant. Clark and two of his gunners were wounded early in the engagement and among other heavy damage the throttle controls for three engines were shot away. Nevertheless, after twenty minutes, during which two of the repeatedly attacking Junkers were also damaged, the Sunderland reached the safety of cloud. Unable to reduce his engine revolutions to economical cruising speed Clark was now faced with the probability that his fuel would quickly be consumed, but eventually he made a successful landing a few miles short of base despite his injuries, and the aircraft was towed into Plymouth. Casualties continued to be high, however, for one Sunderland from each squadron was shot down during the month and widespread searches failed to discover any survivors.

Another near tragedy was only averted on 11th November by consummate airmanship on the part of Flight Lieutenant Williams (No. 10) when outward-bound for a "Percussion" patrol. The Sunderland was 150 miles from base when the starboard-inner engine failed and Williams had barely time to turn on a reciprocal course when the bridge filled with smoke and the starboard-inner propeller sheared off at the reduction gear, struck the starboard-outer propeller and both flew off into space. The Sunderland lost height rapidly and was almost at sea level before Williams succeeded in levelling out with himself and his first pilot applying full port rudder and three-quarter aileron control to hold against the madly-racing port engines which barely kept the aircraft flying at all. Depth-charges, guns, ammunition, tools, 1,000 gallons of fuel and every loose article except the air-sea rescue packs were jettisoned in an attempt to maintain height. This fearful battle with the controls continued for forty minutes with the constant fear that one of the remaining engines would also fail before a successful landing was made at the Scilly Isles. Even this great deliverance was marred by the serious wound sustained by Sergeant Burleigh³ while the guns were being thrown overboard. One gun, not correctly unloaded, fell and fired on impact; a bullet hit Burleigh in the left knee and this wound proved fatal some five weeks later.

¹ F-Lt J. S. B. Dobson, 411298. 461 and 37 Sqns. Clerk; of Scone, NSW; b. Scone, 6 Jun 1918.

² F-Lt C. C. Clark, DFC, 411679. 10 and 37 Sqns. Butcher; of Muswellbrook, NSW; b. Muswellbrook, 19 Nov 1917.

³ Sgt H. K. Burleigh, 49216; 10 Sqn. Bank clerk; of Kerang, Vic; b. Yan Yean, Vic, 20 Sep 1921. Died of wound 15 Dec 1943.

Enemy U-boats made no real attempt to attack shipping in the North Atlantic during November 1943, in fact no Allied ships were lost in that area but nevertheless eight U-boats were destroyed while waiting along the convoy routes. Five of these fell victims to naval convoy escorts or support groups; but, on 16th November, Flying Officer Bookless of No. 86, while patrolling round a convoy, sank *U280*. His first approach was made in the face of heavy gun fire which crippled one engine and extensively damaged the leading edge of the Liberator's port wing, so that the depth-charges overshot. A determined second attack was more successful, the depth-charges landing close to the enemy's hull, and, although the U-boat submerged on an even keel, apparently only damaged, it foundered soon afterwards. However, the era of good hunting by day had passed, and, except when weather prevented air patrols, U-boats rarely ventured on the surface by day; nor even when violent December gales disorganised and scattered convoys did the enemy profit much even from night operations. Only eight ships were lost in the North Atlantic during December, mostly in chance encounters, for without freedom of movement the U-boats could make little deliberate reconnaissance for suitable targets. The appalling weather militated equally against air operations and, although four U-boats were destroyed in the North Atlantic, none of them fell to land-based aircraft.

Flying over the Bay of Biscay was similarly hampered during December and thirty-five of the 113 sorties flown by Nos. 10 and 461 were curtailed by climatic conditions, another twenty sorties were partially ineffective due to technical failures, and all flying had to be cancelled on six days. The same factors affected other squadrons of No. 19 Group in like degree, so that it was impossible to keep a wholly satisfactory continuous watch on the "Percussion" area, with the result that U-boats slipped in and out of the Bay by using the utmost caution. Each of the R.A.A.F. squadrons sighted one U-boat, the first seen by either for over four months, but each U-boat was well submerged before any attack could be made. Crews were heartened, however, by instructions to watch for blockade runners on passage from Japan which were expected to enter the Bay under cover of wintry conditions, and on 23rd December an unidentified ship was reported in the Outer Approaches. That night aircraft on "Percussion" patrols received radar responses of a force of destroyers, possibly accompanied by a merchant ship, moving westward to meet the inward-bound blockade runner, and these two forces joined company shortly after noon on 24th December, immediately turning eastwards. The formidable enemy escort then consisted of five *Narvik*-class destroyers and three *Elbing*-class destroyers and consequently individual aircraft were forbidden to attack. Two Sunderlands of No. 461 shadowed the force during the afternoon, and other aircraft maintained contact during the night. The weather on Christmas morning was unfavourable for flying and there was a break in reconnaissance before a Beaufighter strike wing was dispatched during the afternoon. This delay proved costly as the Beaufighters could not find

the target, and before another large strike could be mounted the blockade runner and its escorts were safely at Bordeaux.

This initial failure, however, made all squadrons and naval units even more keen to destroy the next ship, expected to follow after an interval of four days—the necessary turn round time for the German escorts. The *Alsterufer* was actually sighted early on 27th December steaming eastwards at 15 knots and was shadowed throughout the morning by Sunderlands. Burcher in Liberator F/86 took over shadowing duties at 2.30 p.m. and remained circling and homing strike aircraft. A Czech Liberator (H/311) arrived shortly after 4 p.m. and made an immediate rocket-projectile and bombing attack which caused a large fire on the stern of the *Alsterufer*. This aircraft was badly damaged and had to withdraw but Burcher continued to shadow until 5.15 p.m. when the ship was well alight and about seventy survivors had taken to life-boats. He was then instructed to bomb the burning vessel before returning to base. The air search was now adjusted to meet the possibility of British cruisers bringing to action the German escort force which would almost certainly be on its way to rendezvous with the sunk *Alsterufer*. American Liberators made the first contact with a west-bound destroyer force at 9.30 a.m. on 28th December, but as these ships turned about and contradictory position reports were given by other aircraft making contact, there was some doubt whether the cruisers *Glasgow* and *Enterprise* would be able to intercept them at all. However, at 11.30 a.m. a Sunderland of No. 10 reported that the enemy was in fact west of the previous estimates, and, in view of the crews' experience, this new position was accepted by naval authorities. Two hours later the British cruisers came up with the German force and finally sank one *Narvik*- and two *Elbing*-class destroyers before the enemy split into small groups and withdrew at high speed towards their bases.

Air patrols continued from the Azores and England until 6th January 1944 when it was learned that the one remaining blockade runner (the *Weserland*) had already been sunk by American naval forces in the South Pacific. There was no attempt to sail any of the potential eastward-bound ships lying in French harbours and under constant check by photographic reconnaissance aircraft of Coastal Command. Indeed, although weather and human errors at one stage threatened to nullify the blockade, Coastal Command patrols had proved themselves strong enough to bar effectively any German hope of a resumption of trade with Japan.⁴

This severing of Germany's one sea link with the outside world emphasised the degree to which the original aggressor was now forced to purely defensive measures. Although the year ended quietly as far as the war at sea was concerned, Coastal Command and the forces acting in conjunction with it had admirably fulfilled the task laid down at Casablanca of defeating the U-boat threat as a necessary preliminary to full-scale attack

⁴ *Fuehrer Naval Conferences 1944*, p. 9, 18 Jan 1944. Hitler "believes that the plan has so little chance of succeeding that even the importance of supporting Japan plays no part here, since the ships will never reach that country anyway He decides that no surface blockade runners are to leave port and thereby specifically abandons all intentions of importing raw materials from Japan"

on Germany. Up to April 1943 there had appeared a great danger that the enemy would achieve his aim of severing the vital North Atlantic supply routes, but thereafter the power of the U-boat ebbed and though still numerically strong the U-boat fleet was held in check by more powerful defences.⁵ Both sides now realised that the U-boat would be employed mainly in a defensive role, partly to harass and preoccupy as large a part as possible of the Allied air and naval resources, and partly to operate against shipping used in the invasion of Europe which was tacitly expected in the spring or summer of 1944. The war at sea from being a major offensive declined into a mere "holding campaign" while the protagonists made preparations for the decisive clash. On the one hand Doenitz, while losing no tactical opportunity to create diversions with U-boats in as many oceans as possible, retained the bulk of his trained crews in the five Biscay ports at instant readiness. He also speeded up, with the help of Albert Speer (munitions minister), the erection of new prefabricated U-boats of revolutionary design and high under-water speed, introducing as a stop gap the *Schnorkel*, an extensible air tube which permitted U-boats to operate on diesel engines below the surface, thus giving them a submerged speed of 6 knots and virtual immunity from radar detection because they no longer needed to surface for recharging batteries. The general nature of these innovations was well known to the Allies who prepared various counter-measures, and again increased the training facilities for all squadrons so that any resurgence of U-boat activity could be promptly met.

That the R.A.A.F. Sunderland squadrons fully realised the importance of training so that the most could be made of every opportunity was well illustrated in January 1944. All except two of the sorties flown produced nothing except a wearisome painstaking search with a high incidence of early returns due to engine trouble, bad weather, or warning of enemy fighters. The two exceptions, however, fired anew the enthusiasm and determination of all. On 8th January Flying Officer Roberts⁶ of No. 10 was engaged in a day "Percussion" patrol and was flying at 4,300 feet to make best use of the excellent visibility, when he sighted a 500-ton U-boat twelve miles away outward-bound. Roberts dived to intercept and at a range of five miles the enemy opened fire with a fully-automatic 30-mm gun and four 20-mm cannon. This new armament probably encouraged the U-boat captain to fight instead of submerging, but Roberts closed to 1,200 yards and then employed his four fixed bow machine-guns whose withering fire struck down the enemy gunners. This first approach failed as the depth-charge trolley jammed, but, before the U-boat could either dive or reopen fire, Roberts banked steeply and attacked from the starboard quarter. Six depth-charges fell near the *U426*, which lost way, listed and began to sink by the stern. One more machine-gun attack was made by the Sunder-

⁵ At the beginning of 1944 Germany disposed 446 U-boats: 168 at operational stns, 186 on acceptance trials and 92 used for training purposes.

⁶ F-Lt J. P. Roberts, DFC, 413931; 10 Sqn. Accountant; of Northwood, NSW; b. Marrickville, NSW, 24 Jul 1915.

land but the German crew quickly abandoned their vessel and within a few minutes it had slid from view. The bow guns evolved by No. 10 had more than justified themselves in use, and apart from the natural joy at positive success the Australians looked forward with greater confidence to any future occasion when a U-boat, however heavily armed, might attempt to fight back.

The brief spell of fine weather ended abruptly after this incident, and, with the whole North Atlantic in the grip of storms and low cloud, the U-boats returned to the tactics of 1941 and began to close in towards the convoy terminals in the North-Western Approaches. Whenever landplanes could not take off, the Sunderlands were pressed into use for close convoy protection, and it was while thus engaged south-west of Ireland on 28th January that Flight Lieutenant Lucas⁷ of No. 461 sighted and sank *U571*. Again the U-boat, northward-bound, made no attempt to dive but its gunners were silenced during a first unsuccessful approach and the submarine disintegrated one minute after Lucas made a superb attack with his two remaining depth-charges. After the long patient but empty months of negative patrols, Lucas and Roberts displayed the prompt, almost-instinctive coordination and efficiency which had been learned in constant training, and, with this magnificent omen of two indisputable "kills" from two opportunities, the R.A.A.F. squadrons redoubled their efforts to bring every crew to a like pitch. Equally well-executed and resolute were two attacks made by Loney of No. 59 on 13th January several hundred miles south-west of Ireland. As in the other two cases, the German gunners were killed or driven from their posts and although well-placed depth-charges apparently failed to sink this U-boat, it eventually submerged in obvious difficulties and was probably incapable of continuing its patrol.

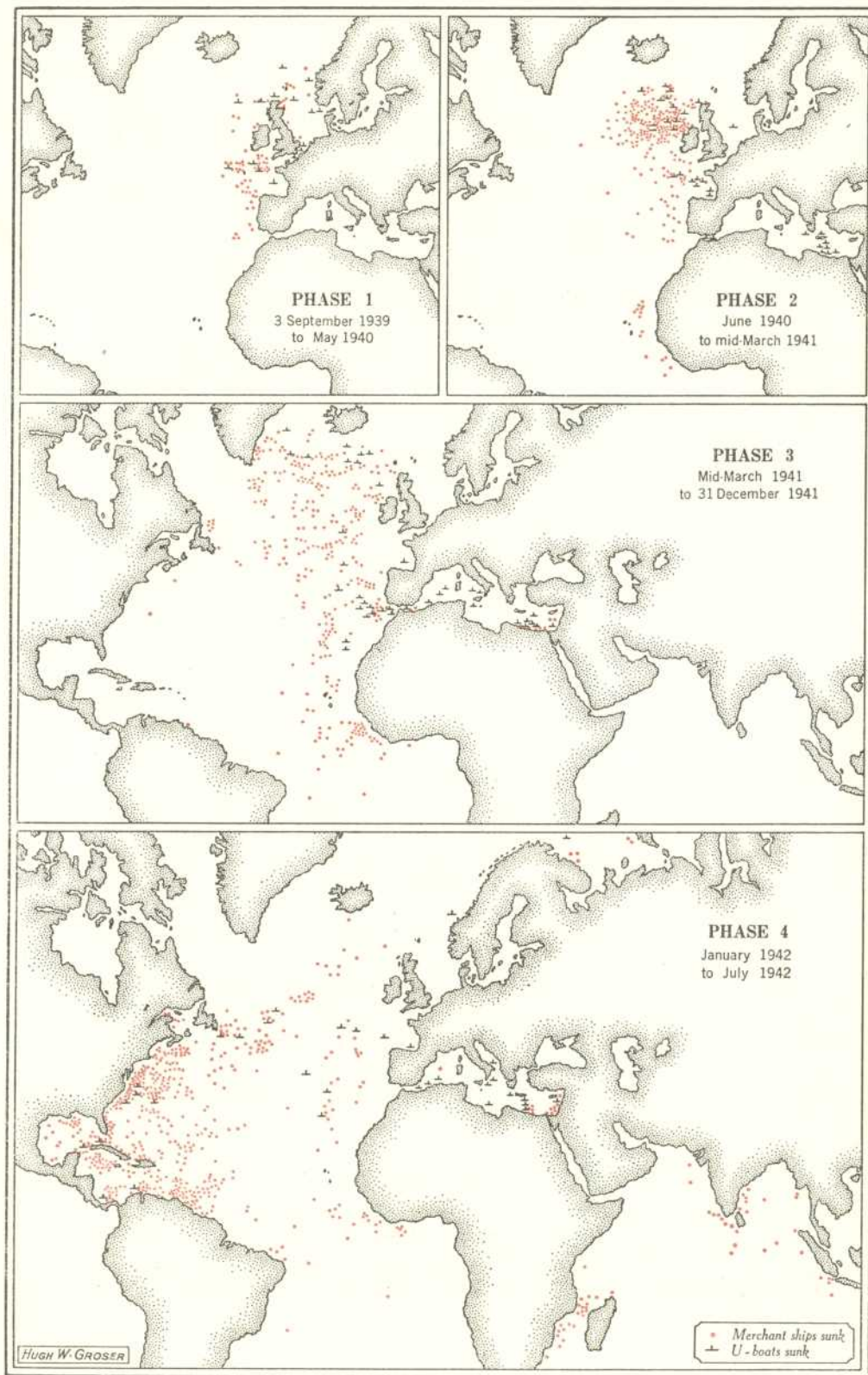
January also saw the departure from Mount Batten of the first two of six Sunderlands purchased in England for R.A.A.F. employment in the South-West Pacific.⁸ Although extremely busy with normal operational requirements and the special modifications which it pioneered, the maintenance section of No. 10 gladly undertook the task of preparing these six aircraft for the transit flight through tropical conditions. Crews for this great venture were carefully chosen, largely from among tour-expired members of Nos. 10 and 461; Squadron Leader Egerton and Flight Lieutenant Rossiter piloting the two Sunderlands which left on 27th January. Flight Lieutenant Hugall⁹ of No. 201 R.A.F. and Squadron Leader Smith of No. 461 led the second flight which departed on 14th February. Flight Lieutenant Marrows and Wing Commander Rice¹ flew with the rearguard party on 1st March.

⁷ F-Lt R. D. Lucas, DFC, 420692. 461 Sqn, 246 Sqn RAF. Clerk; of Sydney; b. Sydney, 27 Sep 1922.

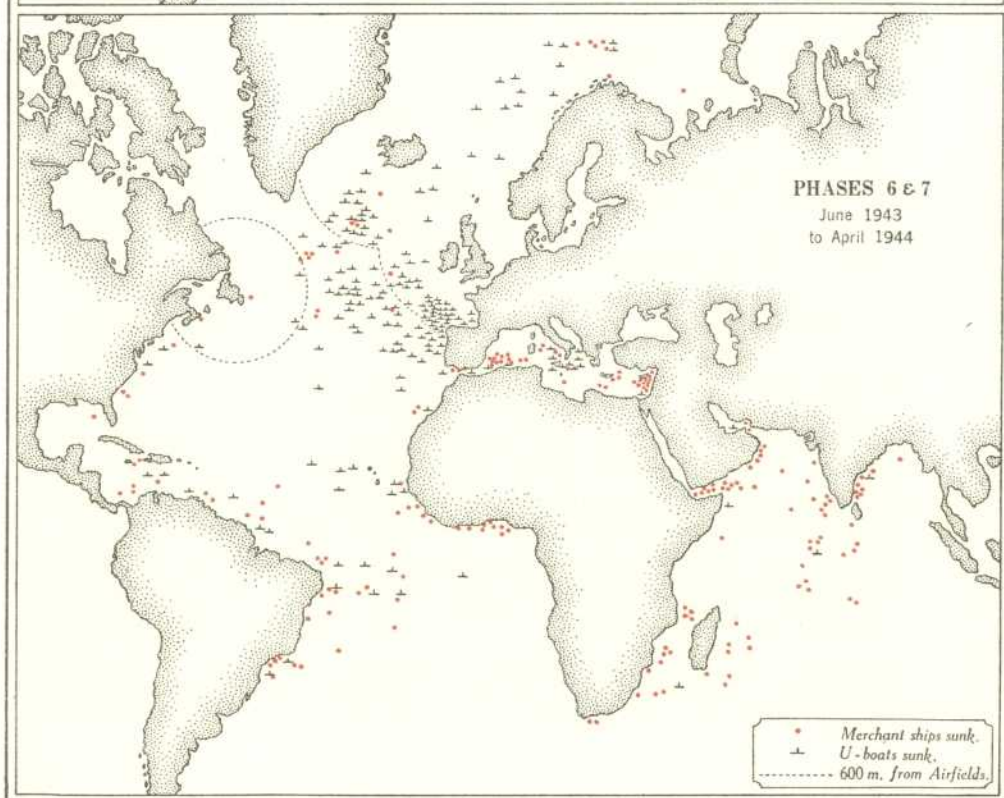
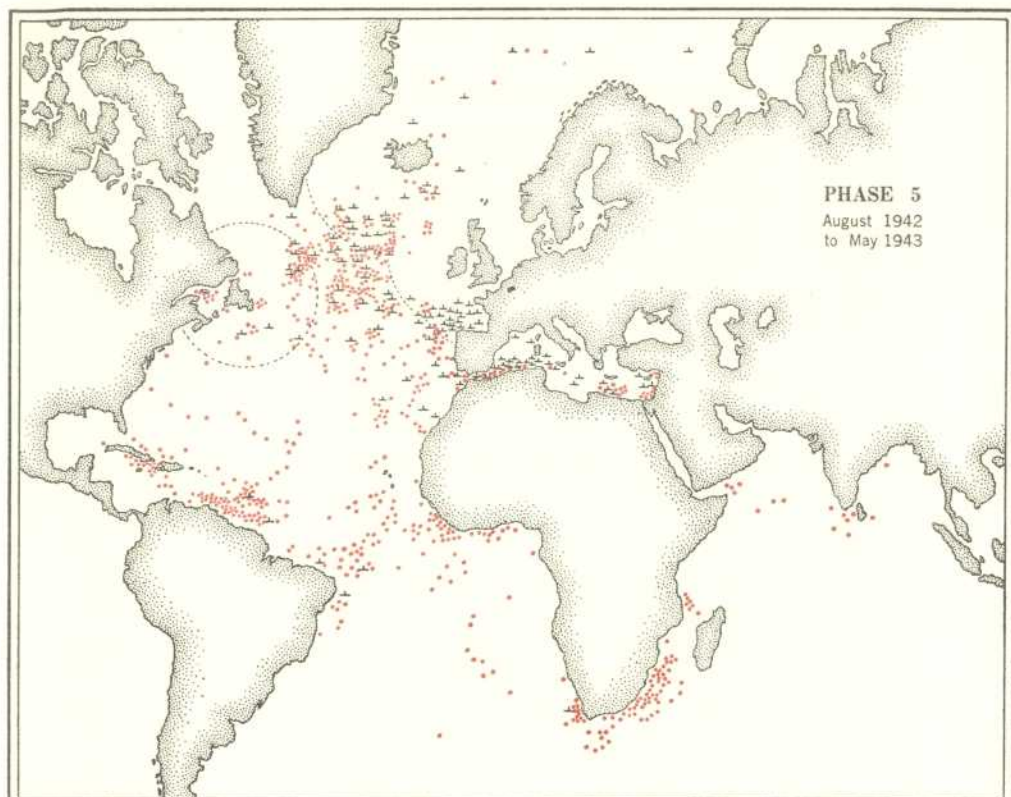
⁸ On reaching Australia the aircraft and crews were used on transport duties.

⁹ F-Lt C. B. Hugall, 406357. 423 Sqn RCAF, 204 and 201 Sqns RAF, 40 Sqn. Accountant; of Fremantle, WA; b. Fremantle, 12 Jan 1914.

¹ W Cdr R. S. Rice, 287. 10 Sqn; comd 2 Flying-Boat Repair Depot 1944, 1 FBRD 1944-45; Dep Dir Rpr and Maintenance RAAF HQ 1945. Regular air force offr; of Lismore, NSW; b. Dungog, NSW, 19 Mar 1917.



Phases of the U-boat war: September 1939-July 1942.



Phases of the U-boat war: August 1942-April 1944.

Rice had been the engineering officer of No. 10 Squadron since October 1941 and to his happy cooperation both with the flying crews and the maintenance personnel can be ascribed the phenomenal serviceability rate maintained at Mount Batten. No. 10 had never relied (as did No. 461) on R.A.F. resources even for major inspections or overhauls, and overcame delays by a "garage" system of replacing whole units needing attention in preference to grounding an aircraft while repairs were made on the spot. Because Sunderlands manufactured by Short Brothers and Blackburn's had noticeable differences in engine layout, it was the practice immediately on receiving a new aircraft to modify it to a standard type into which universal replacement parts could be fitted with or without extensions devised where necessary in the squadron workshops. At this initial overhaul all equipment or fittings not required for use in the Bay were removed, and an ideal operational type of boat was provided for the conditions under which the pilots actually flew.² When in 1943 Coastal Command extended the "Planned Flying and Planned Maintenance" scheme to flying-boat squadrons, No. 10 found that the "planned flying" which entailed an optimum use of aircraft could be executed easily without altering at all its existing maintenance provisions. No. 461 frequently had to wait long periods for the return of Sunderlands sent away for major inspections under R.A.F. grouped facilities, but, at Mount Batten, pride in their own ability and system, inspiring leadership from N.C.O's and the squadron and station commanders, and close interest and fellowship with the aircrews, encouraged the maintenance personnel to work devotedly long hours when necessary to keep all aircraft available for operations. This exceptional performance was maintained, although alone among the flying-boat bases, Mount Batten became subject late in 1943 to recurrent enemy air raids.

The more personal feeling which animated all ranks at Mount Batten owed much to the influence of Group Captain Alexander, who, as squadron commander of No. 10 in the latter half of 1942, and then commander of R.A.F. Station Mount Batten, brought an intimate knowledge of operations and wise administrative qualities to the task of maintaining No. 10 as an extremely efficient unit. He was, at this time, successfully initiating another modification to the Sunderland aircraft of vital importance to all aircrews. The Pegasus engines (frequently reconditioned after use with Bomber Command), which powered the Sunderland, had become increasingly unequal to their task with every increase in over-all operational weight and range. Frequent engine failure during flight had progressively threatened the maintenance of patrols, and as fully-feathering propellers were not fitted, over-heated engines often seized and propellers sheared off frequently causing further structural damage to the aircraft. Even in safe areas this was an inordinate risk, but for flights over the enemy-patrolled Bay of Biscay it placed aircrews at a tremendous disadvantage.

² This procedure was possible as the Sunderlands were the property of the RAAF. No. 461 using RAF equipment could not for example remove the trailing-edge tanks to increase payload, because though not used in the Bay these tanks were part of the "standard" RAF Sunderland which must be maintained fit for immediate use in any theatre.

Even with the greatest care in maintenance the condition of engines received had fallen below an acceptable standard, and in September 1943 one new Sunderland had seven engines replaced before it successfully completed a sortie. Alexander now proposed that Pratt and Whitney engines with fully-feathering propellers should replace the Pegasus type. Similar suggestions had previously been passively rejected on the score that the Sunderland mainplane would not bear the stress of the more powerful engines; but with quiet persistence, Alexander finally secured approval to modify one Sunderland at Mount Batten, and moreover Short Brothers then also agreed to prepare a new prototype.

With less rigorous weather during February and March the R.A.A.F. Sunderlands steadily increased their effort to 105 sorties in February and 132 in March. In the latter month No. 10, with 890 hours on operations and 254 hours spent in training, again broke the record for a Sunderland squadron. This notable contribution to the ever-increasing pressure exerted by Coastal Command was not rewarded by positive action against the enemy, for with the return of good flying conditions the U-boats had swiftly retreated into mid-Atlantic and were again surfacing only at night when within range of shore-based aircraft. The only Australian to encounter a U-boat was Paynter of No. 612 then operating from Limavady. On 10th February he was patrolling at 600 feet when his radar operator reported a contact seven miles away on the starboard beam. Paynter descended to 200 feet and sighted the enemy by moonlight at a range of just over one mile, so, without switching on his Leigh light, he made an immediate surprise attack before the U-boat could open fire. As the Wellington swept over, the rear gunner saw the U-boat silhouetted against the earlier depth-charge plumes before it was obliterated by the rest of the stick, and *U545* was sinking rapidly when Paynter flew overhead three minutes later. This action took place in the North-Western Approaches, and although forty-five German U-boats were sunk in all areas during February and March, they fell victims mainly to naval attack, and the only one sunk in the Bay of Biscay was the result of a novel air experiment unconnected with the main blockade patrols. This one air success was on 25th March when two special "tsetse" Mosquitos of No. 248 armed with six-pounder guns sank *U976*. The Mosquito could penetrate the inshore Biscay waters where some U-boats attempted to make swift surface passage before diving to creep through the "Percussion" areas, and this incident therefore added a further threat to submarines on passage. Earlier that month on 10th March the two special Mosquitos accompanied by four other fighter Mosquitos had searched for a damaged U-boat north of Cape Penas in Spain, but found instead a force of German destroyers accompanied by ten Ju-88's apparently sent to escort it to harbour. Flight Lieutenant Cobbledick³ shot down one Ju-88 and then repeatedly approached the ships to lure the others away so that the gun-Mosquitos

³ F-Lt L. T. Cobbledick, 120148 RAF. 248 and 618 Sqns RAF. Accountant; of Colac, Vic; b. Melbourne, 24 Jan 1912.

could attack. On several occasions he drew away pairs of Ju-88's and in dog-fights damaged one before the search was abandoned.

Although the Sunderland anti-submarine patrols appeared to produce little tangible result, the constant efforts made by the *Luftwaffe* to clear the Bay area left little doubt in the Australians' minds of the true value of their work. There were many minor skirmishes and evasions, but on 15th February Flight Lieutenant McCulloch⁴ of No. 10 found himself suddenly confronted by twelve Ju-88's to starboard and another formation of eight to port. Only quick action on the part of McCulloch and his gunners in beating off the first attack and then heading at full speed for cloud cover, saved the Sunderland from destruction by these overwhelming odds; even in the first approach a stray bullet killed outright the Sunderland tail gunner. Two Sunderlands of No. 461 were hotly beset on 23rd March; one crew survived six attacks by four Ju-88's; Flying Officer Bunce⁵ had to face nine enemy fighters, and although one of them was probably shot down, Bunce had to land in the open sea when a cannon shell exploded in a port fuel tank and set his mainplane afire. Seven members of this crew were rescued two days later by the mine-laying destroyer, *Saladin*, after Sunderlands from Nos. 10 and 461 had found and maintained patrol round the dinghy.

⁴ F-Lt J. McCulloch, 409429; 10 Sqn. Sales administrator; of Malvern, Vic; b. Jerilderie, NSW, 27 Feb 1913.

⁵ F-Lt F. H. Bunce, DFC, 424550; 461 Sqn. Leather chemist; of Vaucluse, NSW; b. Coogee, NSW, 13 Jun 1924.

CHAPTER 24

BERLIN AND OTHER LONG-DISTANCE RAIDS

By November 1943 Air Chief Marshal Harris at last possessed a night-bombing force sufficiently large to permit a campaign against the German capital. Berlin had been attacked before but only incidentally, as part of the general strategic plan. Now it was believed that a series of successful raids might not only devastate the city, but react enormously on German morale. The expulsion of Axis armies from Africa, the invasion of Sicily, the fall of Mussolini, and retreats on the eastern front since the disaster of Stalingrad, had all played their part, but all these setbacks were remote from the German homeland. The task which remained—to weaken Germany militarily, industrially and psychologically in time for the projected landing of a liberating army in France during 1944—was enormous. In the Ruhr and other industrial cities, Bomber Command had struck at and weakened the heart and limbs of enemy resistance; in Berlin it aimed at the head and mind.

Previous winters had been times of enforced conservation of the bomber effort, but there could be no relaxation now or the autumn damage would largely be repaired by the spring. Thus in November 1943 it was planned to send as many aircraft over Germany as had been dispatched in the three months between October 1942 and February 1943. Raids now had to be conducted on moonless nights because of the danger from fighters, and in practice flying was restricted to a mere six nights in November and six in December because of treacherous weather. On these nights, however, a maximum effort was exerted by a force which totalled 900 aircraft, 86 per cent of which were four-engined. The introduction of Window had reduced the proportion of aircraft damaged by ground fire on each night from 10 to 4 per cent and thus the number of bombers available for consecutive operations rose markedly. Nevertheless the success of these winter sorties depended, even more than on planning and administrative arrangements, on the discipline, courage and standard of training of the aircrews, and on the tireless work of the ground staff. Bomber Command was in the middle of a delayed expansion program with many new squadrons forming, at the very time when several old-established airfields had to be given up to the rapidly-growing American day-bombing force. Consequently ground maintenance, refuelling and re-arming crews worked in cramped quarters or out of doors in the highly-unpleasant conditions of winter.

At Binbrook and Waddington Australians and Englishmen alike worked hard to ensure the utmost serviceability, and felt themselves well rewarded as consistently month after month Nos. 460 and 467 provided more aircraft than similar squadrons. Aircrew also, although helped by radar navigational devices, had to work harder in bad weather to maintain timing and sequence over distant targets. Many of the comparative failures at

this time were due to human errors in navigation or airmanship, but all squadrons and individual crews took great pains to analyse faults and to avoid them where possible. The standard crew, though possibly less brilliant than in previous years, was undoubtedly better trained and equipped for the vast coordinated raids on which it flew. Although losses had been, and were to continue to be high, morale was excellent.

The average Australian airman had no interest in the recurrent struggle at political and high-service levels between the proponents of "precision bombing" and "area bombing". He was only dimly aware of the repeated pressure from the American Air Force (soon to become numerically the larger partner¹ in the heavy-bomber offensive) to place Anglo-American strategic bombing under a single command. With eyes necessarily focused on day-to-day operations the Australians were nevertheless quite satisfied with their own role and saw only the broad practical benefit of both day and night assault which gave the enemy little rest or tactical freedom. Pride of individual squadrons and of Bomber Command still transcended aspirations for an Australian contingent, even though the proportional effort of that contingent was steadily rising. On 25th November No. 463 Squadron R.A.A.F. sprang fully armed from the existing third flight of No. 467 at Waddington. A week later No. 466 came back into the line equipped with Halifax III aircraft while at Binbrook No. 460 continued to operate three flights of Lancasters. Four heavy-bomber squadrons, of which only one (No. 460) was substantially maintained by Australian ground staff, were too few to justify the plan for an Australian Group, proposed twelve months before by Air Marshal Williams. Despite the precise negotiations embodied in the new Joint Air Training Plan Agreement of May 1943, even these squadrons were still distributed among three groups, and at the same time a majority of Australians continued to serve on R.A.F. squadrons. Like other political issues, however, this hardly touched the individual. As at this time nearly all squadrons attacked one main target there was little divergence in experience; the unity was simply that of Bomber Command.

The air campaign to cripple Berlin began in earnest in mid-November, and eight heavy attacks were made before the end of 1943 (Table No. 50).

Except for a few Mosquito flare-dropping aircraft the initial raid was made entirely by Lancasters. Nos. 460 and 467, both at that time three-flight squadrons, made a special effort and provided fifty-two aircraft, 11.7 per cent of the whole force.² Elaborate subsidiary raids were made by 13 Lancasters against coastal defences; by 26 medium bombers against flak defences along the route; by Mosquitos which laid spoof markers over Frankfurt-on-Main; and by 395 Halifax and Stirling aircraft against Mannheim. In the event (although twenty-five bombers were lost at Mann-

¹ In Oct 1943 more than 600 Fortresses and Liberators were based in England. Although casualties were sometimes heavy, the flow of replacement crews and aircraft was continually growing. The USAAF continuously and consciously strove to vindicate its own bombing theories; it strenuously opposed any incorporation into the Allied Expeditionary Air Force and proposed instead a combined strategic air force.

² 467 Sqn was forced to borrow 4 crews from 9 and 50 Sqn RAF.

heim) it was exceptionally fortunate that this most ambitious diversionary program to date successfully drew off enemy fighters, because the wind forecast for the Berlin route was inaccurate. Crews of No. 460 arrived

TABLE No. 50

BERLIN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943								
Nov 18-19	444	402	460	28	25	1,594	9	1
			467	24	24			—
Nov 22-23	764	670	460	25	22	2,465	26	—
			467	17	16			—
Nov 23-24	382	332	460	16	15	1,335	20	2
			467	16	12			—
Nov 26-27	450	407	460	24	21	1,576	28	1
			463	6	6			1
			467	14	14			—
Dec 2- 3	458	401	460	25	24	1,686	40	5
			463	5	4			—
			467	13	13			—
Dec 16-17	492	450	460	20	19	1,815	25 +29*	4*
			463	12	12			—
			467	12	11			—
Dec 23-24	379	338	460	15	15	1,288	15	—
			463	12	9			1
			467	8	6			—
Dec 29-30	712	656	460	22	22	2,315	20	2
			463	11	11			—
			466	15	14			—
			467	13	13			1

* Crashed at base.

at the target fifteen minutes ahead of the Pathfinders and had to circle until the markers were laid. Three were hit by gun fire during this enforced wait and a fourth collided with another Lancaster in the scrimmage which ensued when the second wave reached the target. However, this bad timing of the bomber stream did not entail the usual dangers; only one Australian crew, for example, had to withstand fighter attack. Berlin was covered by dense cloud and the Pathfinder markers soon dis-

appeared from sight, so that the bombers were forced to bomb hurriedly or to rely upon the glow of fires reflected back on the clouds.

The second attack which included the Halifax squadrons was more promising, for with the whole force over the target within thirty-eight minutes the sky markers did not drift out of position. Enemy guns made determined efforts to shoot down these flares and this appeared to confirm that they were directly over the city. Despite the heavy cloud covering Berlin all crews attacked with confidence, especially those of No. 460 because their aircraft had recently been fitted with H2S and they were able to make an independent check on the position of markers. Many German airfields were weather bound that night and fighter activity was slight with the result that Australians made unhurried runs up to the target and only one Lancaster was intercepted. The only aircraft which got into difficulties were those which strayed off course over gun-defended areas, and, lacking the protection of the general Window screen, were opposed by accurate predicted fire. The clouds over Berlin were suffused with the brilliant glow of fires raging on the ground and huge explosions created impressive aureole phenomena which crews likened to "a terrific sunset". Their estimation that this attack was the most successful yet made on Berlin was quickly borne out by a gloomy German broadcast during the same night describing a "heavy terror attack" on the capital.

One of the incidental dangers of bomber operations was illustrated that night when a Lancaster of No. 467 suffered engine failure while taking off, crashed through a brick building and was shattered to pieces as it struck the ground. Only three members of the crew were injured but bombs and wreckage were scattered over an area adjacent to the Waddington bomb dump. The 4,000-lb bomb was torn from its rack and a wrecked engine fell directly upon it. The incendiary bombs began to ignite but Pilot Officer Fishburn,³ the squadron armament officer, ran through the flames to defuse the main bombs, regardless of the danger that the petrol tanks might explode. With an emergency squad he then prevented the existing fires from reaching the bomb dump.

Both the R.A.A.F. Lancaster squadrons returned on the following night in a smaller raid lasting only twenty-three minutes. The cloud was thinner on this occasion and the target indicators could be seen burning on the ground and Squadron Leader Nichols⁴ of No. 460 judged that bombing was fairly concentrated, the resultant fires giving a larger and stronger glow than previously. The German gun barrage was lessened to allow free play to night fighters, but although losses were relatively heavier, none of the R.A.A.F. crews which returned was actually intercepted. There was no diversion staged for this raid and the safety of the bombers was ensured by the short time over the target in conjunction with a new radio counter-measure which gave apparently genuine but unsettling instructions to the German fighter pilots. The result was exasperation and doubt in

³ F-Lt W. H. Fishburn, 15673. 455 and 460 Sqns, RAF Stns Waddington and Spilsby; 82 Wing. Mechanical engineer; of Sydney; b. Murrurundi, NSW, 22 Apr 1910.

⁴ Sqn Ldr A. W. Nichols, 483. 14, 460, 13 and 25 Sqns; comd ACH Pt Moresby 1945. Regular air force offr; of Wagin, WA; b. Wagin, 18 May 1917.



(R.A.A.F.)

Bomber Command. The final stage of an operational briefing at No. 463 Squadron comes as a crew waits until the navigator completes the flight plan. Left to right: F-O E. H. Giersch, Sgt W. Sinclair (R.A.F.); F-Sgt L. J. Manning; F-O B. A. Buckham (captain); F-Sgt E. J. Holden, F-O's R. W. Board (navigator), J. W. Muddle. A solitary R.A.F. member of an otherwise-Australian crew would (almost invariably) be the flight engineer. The R.A.A.F. never possessed sufficient men in this category to form many completely-Australian crews. The whistles attached to the jacket lapels were to attract the attention of air-sea rescue launches should the crew be forced down into the sea.



(R.A.A.F.)

Bomber Command. After briefing, the crews repair to a locker room to change into flying clothing and collect life jackets ("Mae Wests") and parachutes. A crew of No. 467 Squadron, left to right: F-Sgts A. L. Evans, F. W. Snell; P-O's K. C. Morieson, A. E. Kell (captain); Sgt J. W. Clark (R.A.F.—almost hidden), F-O's R. M. N. Jacombs (squatting), J. F. D. Chapman.



(Planet News, London)

Bomber Command. After completing a sortie a very tired crew is interrogated by an Intelligence officer. The Australian pilot (third from right) watches while the navigator supplies information by reference to his log and navigational chart. The coffee in the mugs was laced with rum if desired.



(Barratt's, London)

Bomber Command. De-briefing completed, the "operational egg" awaited all crew members. Here aircrew relax in a sergeants' mess.



(R.A.A.F.)

Australians at operational airfields in the United Kingdom were, generally, well housed. Here a party in the officers' mess at Waddington is under way; the conversation has become animated; soon the furniture will be moved to one side . . .



(R.A.A.F.)

A regular feature of squadron life in the United Kingdom was the flight parties wherein the aircrews entertained the ground crews. At this party in the mess of No. 467 Lancaster Squadron, the R.A.F. group in the foreground brings out the extent to which the R.A.A.F. was forced to draw on British resources to man E.A.T.S. Australian squadrons.



(R.A.A.F.)

A Lancaster crew of No. 460 Squadron after completing a night-flying test; October 1943. Left to right: Sgts H. Burrows (R.A.F.), S. J. Ryanhart, L. R. Woods (R.A.F.); W-O R. K. W. Tasker (captain); Sgts R. C. Lumley (R.A.F.), K. N. J. Croft (R.A.F.), S. W. Barrett (R.A.F.).



(R.A.A.F.)

A Halifax crew of No. 466 Squadron on their return from Berlin, 20th January 1944. Left to right: P-O S. R. McDonald (captain); F-Sgts K. M. Tranent, R. J. Evans, G. J. Mitchell, J. H. Maunder; Sgt F. Greenwood (R.A.F.); F-Sgt P. J. Bourke. Mitchell carries in his hand the film magazine from the aircraft's camera, while about his feet are the navigator's map and instrument bag, sextant and astro-compass cases.

the minds of the pilots who were further confused by simulated fighter-type flares dropped by Mosquitos well to the north of the bomber stream.

On 26th-27th November came the fourth raid in nine nights. The newly-formed No. 463 Squadron sent six Lancasters, but this represented only a nominal increase in Australian effort as the same aircraft and crews had previously flown with No. 467. The operation began well with the entire main bomber force heading direct for Frankfurt-on-Main, where the stream bifurcated, Halifaxes continuing on to bomb Stuttgart while the Lancasters headed for Berlin. Enemy fighters laid flares over Frankfurt-on-Main and then apparently lost valuable time in discovering the real targets for only the later waves over Berlin met opposition in the air. Broken cloud en route gave way to clear skies over Berlin and the first Australians to arrive found fires still smouldering from earlier raids. These and the tremendous concentration of guns and searchlights left no room for doubt that this time they were truly over Berlin. Pathfinder markers were laid punctually, and, unhampered by fighters, the bombers soon created a large conflagration. Despite the good visibility, however, the target indicators were offset almost seven miles to the north-west of the true aiming point. Fortunately this area included the important industrial districts of Tegel and Reinickendorf which were severely damaged. Ground gun fire was the heaviest the Australians had encountered for some months, and as no cloud hindered searchlights, the emergency system of ranging which the enemy employed when Window prevented radar prediction, worked well. From this attack fourteen Lancasters returned damaged beyond repair, although most of the twenty-eight bombers shot down probably fell victims to fighters which were swarming towards Berlin along the withdrawal route of the Lancasters. Two Australians reported combats and one crew of No. 463 claimed the destruction of a Ju-88.

Thus far the campaign, while not achieving success comparable to the holocaust at Hamburg, had won satisfactory results against the most heavily-defended target in Germany, but the fifth raid on 2nd-3rd December was a costly failure. The winds actually met in flight varied from those forecast considerably in strength and by 90 degrees in direction. Many navigators failed to discover this before they had been blown well south of track and the bomber stream scattered. Some crews of No. 460 found new winds by means of H2S navigation, but because they were so radically opposed to the forecast, in many cases the new information was ignored. Worse still the change in winds cleared away fog which had been blanketing the German airfields and enemy fighters were present over Berlin from the outset to oppose the disorganised bombing force as it arrived. Few of the Pathfinders successfully identified Rathenow from which they were to make a timed run, and consequently target indicators and bombs were scattered over many square miles to the south of Berlin. It was a very black night for No. 460; it lost five Lancasters, and three more had to struggle home on three engines. Several aircraft from the other Australian squadrons were damaged by gun fire during their

return, when use of forecast winds again caused confusion so that they faced not only the defences of Berlin but the defences of the Ruhr during the same flight. The nightly battle of bluff on this occasion prevented clear thinking by some of the Australian navigators, who clearly saw Pathfinder route markers, but, as they were so far distant from their own track, they dismissed them as enemy decoys, and continued to head into danger.

Apart from the aircraft which failed to return, only one Australian Lancaster (No. 467) was in combat with fighters, but an aircraft piloted by Pilot Officer Hughes⁵ of No. 514 R.A.F., who was on his sixth flight to Berlin, was fortunate to escape destruction. Immediately after Hughes bombed, an Me-210 attacked from the rear and shot the Lancaster's rear turret into a mangled wreck. A fire broke out amidships and set alight the clothing of the mid-upper gunner. Hughes' first knowledge of the attack was when his port wing was hit. Blinded by smoke and with his gunnery and observation posts out of action, he took violent evasive action which extinguished the burning fuselage. As the fighter bored in again emergency directions from the wireless operator enabled him to dive away to safety at the critical moment. Although one engine failed almost immediately he flew the damaged Lancaster safely back to England.

On 16th-17th December the attack was resumed after the enforced lull covering the period of full moon. The factor of adverse weather was still apparent for although Berlin was reached and well hit in a concentrated raid, the Lancasters found on return that their airfields were shrouded in low cloud and fog. In addition to twenty-five bombers shot down over enemy territory, twenty-nine crashed in the United Kingdom with the loss of 131 lives. The total casualties from this night were thus 54 aircraft or 11 per cent of the force. Four of the accidents caused by the weather involved Lancasters of No. 460. Flight Lieutenant Greenacre⁶ nursed his Lancaster, badly damaged in five fighter attacks, back to England and crashed at an emergency airfield without injury to his crew. A second crippled Lancaster crashed short of the runway at Binbrook with only minor injuries to its crew after the pilot had been ordered to descend to an altitude of 500 feet in the expectation that he would then be clear of cloud. The other two accidents were more serious. One experienced crew was given permission to land but struck a tree during its approach and climbed into cloud again. After half an hour the captain called Binbrook on his radio-telephone set explaining that he was firing Very cartridges, but could not locate the airfield. Soon afterwards this Lancaster crashed into the bomb dump of an adjacent airfield. The remaining aircraft crashed heavily, all the crew suffering injuries, and the rear gunner was killed outright. All other pilots found the period spent circling the base on their return the most harassing part of the trip, for with petrol rapidly running out and the certainty that changed barometric pressure

⁵ P-O G. S. Hughes, 413614; 514 Sqn RAF. Electrician; of Turramurra, NSW; b. Turramurra, 3 Oct 1918. Killed in action 31 Mar 1944.

⁶ F-Lt E. R. Greenacre, DFC, 403217; 460 Sqn. Baker; of Marrickville, NSW; b. Marrickville, 22 Feb 1915.

was giving a false reading on their altimeters they had to risk descending through the thick clouds and breaking clear to identify the airfield lights. The crews of Nos. 463 and 467 were more fortunate and well served by the flying control staff at Waddington. They were sent out to sea and then instructed to break cloud and come in at low level. By this means all except one Lancaster, which landed at an emergency airfield, safely got in to their own base.

It had not been possible to secure reconnaissance photographs covering the Berlin raids, but after eighteen unsuccessful attempts, part of Berlin was at last photographed on 20th December. On the next day Warrant Officer Campbell⁷ of No. 541 Squadron R.A.F., who had done excellent work in connection with the earlier August raids, managed to photograph the whole area. Assessment of these photographs showed that an additional 1,250 acres of built-up area had been destroyed. The Tiergarten and Wilhelmstrasse central districts were heavily hit while in industrial areas ninety-eight key factories had been extensively damaged.

Encouraged by this confirmation of previous success Harris again sent his Lancaster force to Berlin on 23rd-24th December. As a new expedient to aid navigation and timing, selected navigators from each squadron reported to base the actual wind they were encountering at various stages of the journey. These reports were immediately collated by meteorological officers and if necessary a new synoptic wind value was broadcast to the bomber stream. Thus all navigators would employ a common wind and the force would remain compact. But although the bombers reached Berlin compactly and the sky was only partly overcast, the raid was a failure. Sixteen out of thirty-seven Pathfinder aircraft had unserviceable H2S and only one-quarter of the normal primary markers were dropped. Thus when bombing commenced there was no reliable aiming point and the familiar errors of indiscriminate release resulted in most of the bombs falling miles to the south-west of Berlin. Five of the Australian crews from Waddington failed to attack, two returning early through technical failures and three bombing targets other than Berlin. A well-executed spoof raid on Leipzig drew away enemy fighters and no fighter flares appeared over Berlin until the attack was almost over. All the Australians were in the first wave and had a relatively uneventful flight, although one crew had to jettison part of the incendiaries to avoid a fighter and another Lancaster was badly damaged by gun fire when it strayed off course and flew over Hanover.

Success came again on 29th-30th December when No. 466 and other Halifax squadrons were included in the attacking force (see map pp. 318-9). The Pathfinders were on time and the target indicators as checked by H2S sets in both Nos. 460 and 466 were accurately laid, so, with enemy fighters lured away to Magdeburg and Leipzig, an unhurried approach was possible. The searchlight defences were unaccountably weak, but gun fire was heavier than usual, changing from predicted radar-controlled fire to

⁷ F.O. K. G. Campbell, DFC, 411742. 541 Sqn RAF and 103 Wing RAF. Clerk; of Sydney; b. Waverley, NSW, 11 Dec 1922.

barrage fire as the Window technique disorganised enemy radar. Flying Officer Reynolds⁸ of No. 467 was about to attack when gun fire ignited his incendiary bombs, but by diving steeply and jettisoning his bombs he prevented the fire from spreading. Flight Sergeant Burcher⁹ of No. 10 Squadron R.A.F. was also hit immediately before bombing but held level with one engine on fire for two minutes so that he could finish his correct approach to bomb. When he succeeded in extinguishing the fire he began his homeward trip on three engines, only to have a second one fail before he reached an emergency airfield in England.

The Battle of Berlin continued unabated with seven raids during January 1944 and terminated with one maximum strength attack in each of the next two months (Table No. 51). January almost invariably brings heavy cloud over Europe and blind bombing on sky markers was necessary. Thus Berlin apart from strategic issues was the best tactical target, for it alone had a built-up area large enough to ensure that, even if marker flares were offset or drifted, a high percentage of the bombs dropped would cause worthwhile damage. This added intensity of attack was not unexpected by the enemy who had himself completed arrangements for extra fighter defences. In addition to interception over the target, strong groups of fighters began to join the bomber stream even while it was over the North Sea, and, with improved search radar and other devices which homed on bombers employing radar (e.g. H2S), the enemy had a greater degree of success. The task of reaching Berlin became progressively more difficult and in turn Bomber Command introduced new tactics.

As expected, the ninth raid, mounted on 1st-2nd January, was made with cloud completely hiding the target. The Pathfinder primary marking began well but the backers-up were late in arriving and thus no effective concentration was possible. Squadron Leader Marsh¹ of No. 460 reported that no sky markers were burning when he reached Berlin. Other Australians ran in towards flares which died out before they could bomb, and then saw small groups of fresh flares laid in widely-separated positions. There was not even the usual glow of fires beneath the clouds to help the bomb aimers. The main bomber force was itself somewhat disorganised, for German fighters ignored a simulated raid against Hamburg, and gave the first large-scale trial to their *Benito* route-interception scheme. Six Australian Lancasters were attacked at least once before ever they reached Berlin, and one was so badly damaged that it was forced to jettison its bombs and abandon the flight. Two other aircraft jettisoned part of their incendiaries to gain extra speed and altitude. However, the call to "force your way in and fight your way out" had been taken up very enthusiastically, and all the aircraft attacked had fired at and driven off the fighters, two of which were claimed as damaged.

⁸ F-O C. I. Reynolds, 415276; 467 Sqn. Engineering supervisor; of Perth, WA; b. Perth, 23 May 1912. Killed in action 5 Jan 1944.

⁹ F-Lt G. M. Burcher, DFC, DFM, 420536; 10 Sqn RAF. Clerk; of Artarmon, NSW; b. Chatswood, NSW, 13 Mar 1923.

¹ W Cdr H. D. Marsh, DFC, 397. Staff offr Nav 1 Training Gp HQ 1942-43; comd 460 Sqn 1944, 85 Wing 1945. Regular air force offr; of Eastwood, NSW; b. Parramatta, NSW, 12 Jan 1920.

Equally disappointing was the repeat attack made the following night when a number of small factors again combined to prevent good results. Five of thirteen Lancasters of No. 467 could not be prepared in time and one of No. 460 crashed on take-off. The late start made to avoid moonlight

TABLE NO. 51

BERLIN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1944								
Jan 1- 2	421	386	460	17	17	1,401	28	—
			463	11	10			1
			467	10	10			1
Jan 2- 3	383	311	460	19	15	1,116	27	1
			463	8	6			1
			467	8	7			—
Jan 20-21	769	697	460	20	18	2,401	35	1
			463	11	11			—
			466	18	16			1
			467	15	14			—
Jan 21-22	29	29	463	2	2	67	1	—
			467	2	2			—
Jan 27-28	530	481	460	18	18	1,761	33	3
			463	16	16			1
			467	15	14			2
Jan 28-29	680	596	460	12	11	1,954	46	—
			463	14	12			1
			466	14	12			3
			467	13	12			1
Jan 30-31	540	489	460	12	12	1,961	33	—
			463	14	13			4
			466	12	6			—
			467	10	10			1
Feb 15-16	891	806	460	19	18	2,643	43	—
			463	17	16			—
			466	20	17			2
			467	18	17			—
Mar 24-25	810	726	460	24	24	2,493	72	2
			463	14	12			—
			466	14	12			1
			467	19	17			—

and gale conditions over Germany ruled out feint routeing tactics, and the bomber stream was hotly beset throughout its passage. Icing conditions forced several crews to jettison all or part of their bomb load before reaching Berlin, and some crews who received orders during flight to abandon their sortie had actually bombed alternative targets before overriding instructions were issued for them to carry on to Berlin. The capital was still covered by cloud and the Australians, worried persistently by a swarm of night fighters, were forced to choose between widely-placed sky markers. There was little confidence in the accuracy of the bombing.

The casualty rate (nearly 7 per cent) compared with the military results of these last two attacks appeared unduly high. To prevent further concentration of defences at Berlin heavy attacks were made on Stettin and Brunswick, and then, after the moonlight period, the primary struggle was renewed. On 20th-21st January the Halifax bombers joined the Lancasters in an attempt to swamp German counter-measures. Three spoof raids on Kiel, Hanover, and Dusseldorf were disregarded by the enemy controllers, who again concentrated on infiltrating their fighters into the bomber stream as soon as it crossed the coast. Four Australian crews were in combat before reaching Berlin but all escaped undamaged because of well-coordinated crew tactics.² Gun defences were only moderately active at Berlin but three Halifaxes of No. 466 were hit during the early part of the raid. More fighters were waiting over Berlin where, with searchlights illuminating a layer of cloud at 12,000 feet, the bombers could be effectively seen in silhouette. There were three more combats with Me-109's and FW-190's which attempted to attack from a blind spot underneath the bombers. This was often successful against unwary crews and also caused general nervousness which in some cases spoiled the accuracy of bombing. The sky markers spread in a line running east to west, and crews of Nos. 460 and 466 claimed that by H2S checks they lay to the east of Berlin. The Lancasters of No. 5 Group still lacked H2S and Wing Commander Kingsford-Smith of No. 463 bombed one group of sky markers only to see another cascade of target indicators go down five miles distant. Many fires were seen but there was far too much cloud for any accurate assessment, although there was general agreement that this was the most successful raid since 29th-30th December.

On the very next night the spoof technique was reversed, for, while the main bomber force struck at Magdeburg, a small force of Lancasters, including two each from Nos. 463 and 467, went to threaten Berlin. There was little opposition and only a few isolated fires were seen but it was a valuable factor in keeping German defences over-taut. For the next major raid on 27th-28th January further measures were taken to defeat early contact by enemy fighters. A long route over the North Sea was chosen in conjunction with a diversionary attack on Heligoland and support action by Mosquitos which dropped false route markers and fighter

² The standard manoeuvre when a fighter was seen approaching, was a diving corkscrew with predetermined direction and rates of turn. This displaced the bomber in three dimensions from the fixed guns of the enemy and also allowed the turret gunners a well-practised deflection shot. Even if the fighter was not hit, it usually sheered away from determined opposition.

flares well away from the true bomber track. German fighters, however, were waiting over Berlin and were not entirely shaken off by a sharp turn incorporated in the withdrawal route. This defensive manoeuvre was indeed criticised by Australians as greatly increasing the risk of collision, several aircraft being forced to dive away from other Lancasters approaching Berlin somewhat off-track. Fighter activity also caused some bunching of the Lancasters over Berlin and Squadron Leader Brill of No. 463 had his aircraft severely damaged by incendiaries falling from another aircraft. He instructed his crew to abandon the Lancaster, but then regained control and cancelled the order. Losses were again high, especially for the R.A.A.F. squadrons, which lost six of forty-eight Lancasters sent out, but with the glow of large fires reflected on the clouds the airmen were confident that the attack had been successful. This was later borne out by gloomy and hysterical German radio fulminations against this "terror raid on the residential districts of Berlin".

Yet another ruse was employed on 28th-29th January by sending a few Mosquitos to bomb Berlin several hours before the Lancasters and Halifaxes were due to arrive (see map pp. 318-9). Despite this and other diversionary means, the four Australian squadrons found an estimated 150 German fighters awaiting them. Twelve of the fifty-three Australian bombers were actually engaged in air combats but found that the tactics of taking the initiative and opening fire first staved off many attacks. The Halifaxes of No. 466 were very hotly beset. Of twelve aircraft which reached Berlin, three were shot down, including one captained by Squadron Leader McCormack³ who was made prisoner. Two others were attacked twice by fighters over Berlin and three more had single combats during the return flight at positions up to 100 miles distant from the target. The loss-rate remained high at 6.3 per cent, but this was offset by the general success of the raid. For the first time the bombers found breaks in the cloud through which ground target indicators could be clearly seen. The supplementary sky markers were also well grouped so that there was little hesitation or indecision among bomb aimers. Squadron Leader Utz,⁴ flying his second tour of operations, described this as "the most effective attack yet", and for the first time fires appeared to amalgamate into a mass of flames too great for fire fighters to control.

The importance of striking again before this conflagration died down led next night to another maximum strength attack, although the force had to operate in moon conditions which favoured German fighters. Six Halifaxes of No. 466 returned early to base because of unserviceable equipment, but the Lancasters had no difficulty in reaching Berlin.⁵ Cloud had once more sheeted the target but with abundant fighter flares, moon-

³ W Cdr A. O. McCormack, 376. CGI 2 AOS 1941-43; 466 Sqn. Regular air force offr; of Malvern, Vic; b. Melbourne, 19 Mar 1919.

⁴ Sqn Ldr E. A. G. Utz, DFC, 403438. 12 Sqn RAF, 460 Sqn. Farmer and grazier; of Armidale, NSW; b. Glen Innes, NSW, 18 Jun 1913. Killed in action 31 Mar 1944.

⁵ The most common reasons for early return were engine oil pressure failure, turret hydraulic system inoperative, generator failure, or breakdown of the intercommunication equipment. Captains had the right to return in any circumstances which might imperil the safety of the aircraft or crew. Over-frequent failure to complete a sortie left a crew open to a charge of "lack of moral fibre" and some pilots in fact elected to continue sorties in adverse conditions.

light and the reflection of sky markers on cloud, the area appeared at times as bright as day. The section of the stream including No. 463 was persistently attacked by a group of fighters and, although one Ju-88 was damaged, the squadron lost four Lancasters. Flight Sergeant Campbell⁶ of No. 467 also shot down an Me-110 outmanoeuvred by his pilot (Flight Lieutenant Simpson) but the enemy remained persistent and more fighters infiltrated the returning gaggles of bombers. Flying Officer Stevens⁷ of No. 466 who had been attacked on each of his previous two trips to Berlin had to beat off attacks by three separate fighters during his return flight from this raid but by good crew drill aided by radar warning devices he again escaped with minor damage to his Halifax. Some navigators criticised the broadcast winds received during this flight, but the bombers kept well to the pre-arranged timetable and Australians described the concentration of sky markers as the best achieved for some time. Experienced crews again estimated that most of the bombs fell on Berlin, and enemy broadcasts almost immediately admitted that "extensive areas of Berlin were hit".

Bomber Command was now employing five separate types of radio counter-measure. All these had some success in individual circumstances but with 6 per cent casualties during January they had obviously not defeated the new enemy route-interception tactics. The answer was sought in still greater concentration of the bomber stream, so that German pilots given a course to steer towards each raid would have less opportunity of making contact. Pilots especially were enjoined to keep strictly to the correct airspeed as with some aircraft ten minutes ahead of their planned time and others ten minutes behind, the actual length of the bomber stream would be doubled from 60 to 120 miles.⁸

When the February moon period was over, the largest force yet sent against the German capital was routed across the North Sea and down through the Baltic. A very meticulous timetable was observed by all aircraft and most Australians spent the time on the long sea courses ensuring that they were correctly positioned. Some air opposition was met between the Baltic coast and Berlin, but the stream arrived in good order and completed its task within thirty-eight minutes, a rate better than one aircraft every three seconds. One Lancaster fell out of the stream when damaged by two fighters before reaching the target, but its pilot, Warrant Officer Burke,⁹ claimed that his gunners shot down one Ju-88 and damaged an Me-110. He successfully jettisoned his bombs near Rostock and returned on three engines. Relatively few fighters were over Berlin, due to a successful spoof attack against Frankfurt-on-Oder, and

⁶ F-O C. A. Campbell, 426306; 467 Sqn. Salesman; of Eagle Junction, Qld; b. Woolloowin, Qld, 26 Apr 1924.

⁷ F-Lt J. H. Stevens, DFC, 416802. 466 and 37 Sqn. Clerk; of Prospect, SA; b. Medindie, SA, 16 Aug 1923.

⁸ There were many individualistic Australians who speeded to the front or lagged behind deliberately to avoid risk of collision with nervous crews who corkscrewed continually over enemy territory. Others pressed forward to bomb in order to be away before the target fighters were fully in action. Some indifferent pilots simply failed to regulate their speed correctly.

⁹ P-O R. W. Burke, DFC, 420438. 625 Sqn RAF, 460 Sqn. Shop assistant; of Sydney; b. Newtown, NSW, 12 Feb 1922. Killed in action 10 Apr 1944.

Australian losses were confined to two Halifaxes. The usual thick cloud prevented visual identification or ground-marking technique, but H2S-equipped aircraft checked the position of well-grouped sky markers and bombed with confidence.¹ At first bombs fell principally in western suburbs and then spread towards the centre.

On 19th February daylight photographic reconnaissance of Berlin was at last possible. Flying Officer Holland² of No. 540 Squadron R.A.F. made four deliberate runs over Berlin through heavy anti-aircraft barrages to secure perfect photographs. These revealed that fresh damage in the ten major raids since the last assessment was spread over a very large area but that nowhere had large fires raged unchecked over whole districts as had happened at Hamburg. Indeed previous devastation had formed natural firebreaks in many districts, and the total of added destruction was only some 400 acres of built-up property. This included sixteen factories listed as extremely important targets such as the Siemens and Halske A.G. electrical works which suffered particularly heavy damage.

Bomber Command turned to other targets of immediate importance and five weeks elapsed before its last and most costly major attack was launched against Berlin. The long Baltic route was again employed and nearly 150 aircraft from operational training units and conversion units made diversionary sweeps to confuse enemy fighter controllers. As frequently happened the flight plan was disrupted by changed meteorological conditions. An exceptionally strong north wind caused the Pathfinders to overshoot the southern suburbs and also scattered the bomber stream over a very wide area. Aircraft lacking H2S including those from Nos. 463 and 467 were mostly blown off track and actually approached over the heavily gun-defended areas of Sylt, Flensburg and Kiel. Pilot Officer Gibbs³ of No. 467 saw several aircraft shot down near Sylt and it is fairly certain that nearly three-quarters of the bombers lost fell victims to gun fire, either on approach or during withdrawal when similar failure to allow for the unexpected wind velocity carried many of them into the middle of the Ruhr defences. Even the H2S-equipped aircraft found navigation extremely difficult, and one crew of No. 460 overshot Berlin by fifty miles before the Pathfinder flares were seen falling well in the rear. This aircraft turned back and joined in the raid, but a Halifax of No. 466 was so far to the south of the target when the first markers went down that it could not reach Berlin before the attack ended and finally jettisoned its bombs sixty miles south of the capital. The raid might well have been a fiasco, but for the first time a master of ceremonies operated over Berlin and his instructions helped the bombers considerably as they straggled over the target. Precise assessment of this raid was impossible, for photographs,

¹ Crews of 467 (without H2S) reported "only a moderately successful raid" but those of 460 (with H2S) estimated "a concentrated raid . . . glow of fires could be seen 100 miles away".

² F-Lt K. R. Holland, DFC, 410234; 540 Sqn RAF, Field trainee; of Curlwaa, NSW; b. Wentworth, NSW, 24 Sep 1922. Killed in action 27 Oct 1944.

³ F-O D. L. Gibbs, DFC, 413567; 467 Sqn. Seaman; of Parramatta, NSW; b. Hunter's Hill, NSW, 4 Jun 1915.

although they showed considerable fresh devastation, were obtained only after five daylight raids had been made by American aircraft.

The Battle of Berlin ended indecisively. Although appreciable damage had been caused by almost 30,000 tons dropped during the sixteen major raids, an astronomical tonnage would have been required to obliterate the entire sprawling metropolis. Important as it was to strike at the official heart of Germany, yet with the projected assault on "Fortress Europe" only a few months distant there were targets of more immediate military significance to be attacked. Nor could the physical resources of Bomber Command have sustained the effort against Berlin at the same intensity in the face of ever-increasing German defences and the approach of shorter nights. The four-engined bombers were accordingly switched to other duties and the task of perpetuating the threat to Berlin, and of thus pinning down huge forces in its defence, was given to the small but efficient Light Night Striking Force of Mosquito bombers which had grown up within No. 8 Group. The Mosquitos, which eventually were modified to carry a 4,000-lb bomb, flew at 27,000 feet and were fast enough to evade most enemy fighters. They were equipped with special navigational devices to ensure bombing accurate enough to cause appreciable, if scattered, bomb damage, while the regularity with which they could operate regardless of weather conditions or defences was held to have important repercussions on enemy morale, already badly shaken by the major raids.⁴ The main battle itself had been costly, over 500 four-engined bombers being lost through enemy action and many more through accidents while taking off or landing, but though there had been many mistakes at all levels, Bomber Command crews had shown themselves capable and intensely eager to fight their way to the target however severe the opposition.

Of the R.A.A.F. squadrons, No. 460 bore the brunt of these operations flying 316 of the total 785 sorties or 40 per cent of the direct Australian effort and incurring eighteen of the forty-one losses through enemy action. This three-flight squadron flew 131 sorties during November, 114 in December, 158 in January and 98 in February, an unprecedented and record total of winter flying for any heavy-bomber squadron.⁵

All four Australians units were indeed fortunate that they were led throughout these critical months by men who possessed the gift of communicating their own fearlessness and efficiency to every crew on their squadron. After Wing Commander Norman was shot down and captured on 8th October, a navigator, Wing Commander Arthur,⁶ was chosen to

⁴ The desirability of re-equipping up to three Bomber Cd gps entirely with Mosquitos was actively debated early in 1944.

⁵ During the same period 467 flew 365 sorties, 463 (inactive three weeks) 254 and 466 (inactive one month) 212. These (except 467 during Nov) were 2-flight sqns.

⁶ W Cdr F. A. Arthur, DFC, 402072. 70 Sqn RAF, comd 460 Sqn 1943-44. Bank clerk; of Campsie, NSW; b. Kogarah, NSW, 30 Oct 1913. The morale of 460 Sqn during Arthur's term as commanding officer was exceptionally high. To quote his own words: "Most of the personnel looked most doubtful upon receipt of the news that an Observer had been appointed as commanding officer, but after several weeks had passed during which time operations proceeded just the same and with equally good results, their doubts vanished. At no time did they fail to give me their utmost cooperation." Arthur never missed an opportunity of accompanying his sqn on bombing raids, and on each occasion he took as his crew the most recent reinforcements. Once, because of the illness of a member of the crew, he acted as flight engineer as well as captain of the aircraft.

command No. 460, a mark of the increasing importance of non-pilot air-crew and a testimony to the well-proven capabilities of Arthur, who was only the second navigator to lead any bombing squadron. Arthur in turn was succeeded at the beginning of 1944 by Marsh who had also previously served the squadron as a flight commander. No. 466 was well served by Wing Commander Forsyth. Wing Commander Balmer⁷ of No. 467 and Kingsford-Smith of No. 463, two more of the regular officers sent from Australia to stiffen the proposed R.A.A.F. group, were fully imbued with the dashing and individualistic approach to operations which was rapidly characterising No. 5 Group and as these two squadrons were based together they achieved a measure of concerted effort.

The Australian squadrons also benefited during this period of stress from the return of many pilots for a second tour of operations. Some, like Brill and Squadron Leader Doubleday,⁸ quickly became flight commanders, others served as senior captains, and this leavening of experienced crews did much to instil steadiness and confidence in the many freshmen. Squadron Leader Corser⁹ of No. 460 and several other outstanding pilots were lost during the battle, for experience alone could not give full immunity, but there were always sufficient capable leaders among the Australians to maintain a very high level of purposeful effort. Many of these second-tour men had previously operated with non-Australian squadrons, and because they required little if any additional training they were fed in regularly to maintain the national character of the four Australian squadrons. Many others continued to serve as scattered individuals with considerable success. Typical of these was Squadron Leader Comans,¹ a Pathfinder pilot who took part in fourteen of the sixteen major attacks on Berlin. In two tours of operations his aircraft was never hit by fire from night fighters and never seriously damaged by ground fire.

Weather restrictions during November and December 1943 gave little opportunity to launch widespread raids. Apart from Berlin the main targets during the winter of 1943-44 were cities upon which depended the German aircraft industry. Some of these had already been bombed during the autumn in accordance with the joint directive to U.S.A.A.F. and R.A.F. Bomber Command in June 1943, but now the American precision daylight attacks against individual factories became more closely related to the R.A.F. "area devastation" raids. The obvious expansion of German day- and night-fighter resources gave particular emphasis to the existing campaign against the enemy aircraft industry, and in January 1944 it was considered that a new, more comprehensive and at the same time more precise bombing directive was necessary if German air potential was to

⁷ Gp Capt J. R. Balmer, OBE, DFC, 68. Comd 13 Sqn 1940-41, 7 and 100 Sqs 1942, 467 Sqn 1943-44. Regular air force offr; of Maldon, Vic; b. Bendigo, Vic, 3 Jul 1910. Killed in action 12 May 1944.

⁸ W Cdr A. W. Doubleday, DSO, DFC, 402945. 460 and 467 Sqs; comd 61 Sqn RAF 1944-45. Farmer; of Wagga, NSW; b. Coolamon, NSW, 26 Apr 1912.

⁹ Sqn Ldr E. G. M. Corser, DFC, 405122. 218 Sqn RAF, 460 Sqn. Clerk; of Maryborough, Qld; b. Maryborough, 15 Sep 1919. Killed in action 2 Dec 1943.

¹ Sqn Ldr J. L. V. Comans, DFC, 413349. 9 and 97 Sqs RAF. Law student; of Rose Bay, NSW; b. Redfern, NSW, 2 Mar 1912.

be satisfactorily reduced before the land assault began. On 29th January as an interim measure the American Eighth Air Force and R.A.F. Bomber Command were instructed to concentrate on key installations in the German fighter air-frame and the ball-bearing industries. On 17th February the new directive was issued not only to the strategic bombers based in the United Kingdom but also to the American Fifteenth Air Force in Italy, stating that the "over-all mission remains the progressive destruction and dislocation of the German military, industrial and economic system, the disruption of vital elements of lines of communication and material reduction of German air combat strength by successful prosecution of combined bomber offensive from all convenient bases". Under this general mission the primary objective was again German air-frame and ball-bearing production, with attacks against Berlin, German robot-weapon installations and targets in south and south-east Europe only when weather conditions were unsuitable to prosecute the main aim. This concept called for "over-all reduction of German air combat strength in its factories, on the ground and in the air through materially supporting attacks by both strategic air forces, pursued with relentless determination against the same target areas or systems so far as tactical conditions allow, in order to create the air situation most propitious for OVERLORD." The immediate result of this directive was a sustained attack during the spring with particular emphasis between 20th and 25th February when 90 per cent of German fighter production centres were bombed, and 75 per cent of the factory buildings were damaged or destroyed. This result was achieved mainly through U.S.A.A.F. effort although the R.A.F. made four very heavy raids within this period on Leipzig, Stuttgart, Schweinfurt and Augsburg.²

The finer distinctions inherent in the "planned target-systems" imposed from time to time had little relevance. Australians saw the strategic air war as one of attrition against the whole enemy national economy rather than one of knocking out a single keystone by which the whole arch would tumble in ruins. Thus although the aiming points in every raid were always those factories most important from a military viewpoint, it was the total damage—a continual restriction of industrial and administrative potential of all kinds to a point where it could support neither civilian nor war production—which seemed to give the greatest hope of eventual success. This simple appreciation necessarily included an ever-present willingness to fly and to bomb as heavily and as frequently as possible, and to win air superiority by outwitting, depressing and exhausting the enemy defences in the same fashion that by determination and technique the phalanx of Philip of Macedon had overcome even the strongest opposition. That losses were distressingly high only gave an added incentive for in-

² Although these attacks were made during the last week of the month German single-engined fighter production in Feb 1944 was actually 23 per cent below that of Jan. It rose phenomenally in later months owing to emergency programs instituted as a result of these raids to a peak of 3,300 fighters (double the Jan output) in Jul 1944 by which time other factors principally lack of fuels and a shortage of pilots limited the growth of fighter defences. The true value of these raids is thus hard to assess and probably lies more in the waste of industrial effort which they occasioned rather than in a strict military result.

dividuals to strike harder at this peak of the air struggle, and it was indeed due to the fortitude, matchless spirit and attention to detail of all aircrew members that there was no faltering. In the final analysis it was a battle of men rather than of machines despite the ever-mounting influence in the struggle of scientists and technicians of both sides.

Three heavy assaults, each with differing degrees of success, were made against Frankfurt-on-Main during the winter (Table No. 52).

TABLE NO. 52

FRANKFURT-ON-MAIN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943-44								
Dec 20-21	650	576	460	16	16	2,070	40	—
			463	9	7			—
			466	16	14			2
			467	14	12			—
Mar 18-19	846	769	460	21	21	3,086	22	—
			463	18	16			1
			466	12	10			3
			467	22	22			—
Mar 22-23	816	774	460	25	25	3,116	33	—
			463	15	15			—
			466	2	1			—
			467	21	21			—

The costly raid of 20th-21st December, which marked the reappearance on operations of No. 466 Squadron, achieved little. Cloud was only scattered and marking of the target began well but was poorly supported by the backers-up. Many main force bombers were deceived by enemy-laid dummy target indicators, and most of the night photographs taken by R.A.A.F. crews revealed fire tracks and cloud only. Nearly all the bombs fell outside Frankfurt-on-Main to the south-east while Marsh of No. 460 reported fires ten to fifteen miles short of the target. For this negligible result the bombers had to run the gauntlet of fierce fighter opposition, five R.A.A.F. aircraft being actively engaged by the enemy. Flying Officer Marshall³ of No. 467 had his Lancaster damaged by an Me-210 and then further damaged by an Me-109 and ground batteries but still managed to coax the aircraft along the difficult return journey to England.

³ Sqn Ldr W. D. Marshall, DFC, 412821; 467 Sqn. Commercial traveller; of Croydon, NSW; b. Gladesville, NSW, 16 Jun 1920.

When Bomber Command returned to Frankfurt-on-Main on 18th-19th March 1944, however, it carried a record bomb load. No. 5 Group alone dropped over 1,000 tons of bombs and No. 467 earned special praise in creating a record for a two-flight squadron in dispatching twenty-two aircraft carrying 118 tons of bombs. As cover for this vast air armada a diversion was made by 100 aircraft which laid mines near Heligoland, and these machines pre-occupied the enemy fighters from northern Germany until it was too late for them to catch up with the bomber stream. Local fighter defences were active over Frankfurt-on-Main but although four Lancasters of No. 467 were intercepted each escaped without damage. Despite thick haze the Pathfinder markers were easily seen and checked by H2S which gave a good picture of the target. Australians were particularly careful to avoid dummy target indicators, which were again in evidence, as well as decoy fires blazing in open country six miles north of the city. The only hindrance to good bombing was an undue concentration of aircraft over the target, so that, unable to manoeuvre, some R.A.A.F. crews had to bomb outer markers with the result that the attack strayed to the east of the city centre and the largest concentration of bombs ultimately occurred in the river-dock areas.

A force of similar size was sent to Frankfurt-on-Main four nights later and on this occasion it was No. 460 which set a record for Bomber Command by carrying 131 tons of bombs. For Australian crews the raid was uneventful, because good marking and moderate defences permitted a model attack. Reconnaissance later showed that, as a result of these two terrific blows, the centre of Frankfurt-on-Main had been almost blotted out. The aircraft-component works of Alfred Teves were very violently hit and severe damage also resulted to the factories of Alderwerke (armoured fighting vehicles) and Hartmann and Braun (fuse and instrument makers). Fires were still burning on the day after this last raid.

Leipzig (Table No. 53), one of the chief commercial and manufacturing cities of Germany especially important to the aircraft and chemical industries, came within effective striking range of Bomber Command and suffered three attacks during the winter months.

The first attack was spoiled by appalling weather and did little damage. Although twenty-eight of the Australian Lancasters are credited with "attacking", in fact seven ran into difficulties in heavy cloud losing one, two or even three engines temporarily due to ice accretion, and were forced to jettison their bombs over enemy-held territory. One of these Lancasters was so badly affected that the crew were ordered to abandon the aircraft, but the pilot regained control when the aircraft broke cloud at 3,000 feet. Several of the bombers which did reach Leipzig were forced to jettison part of their loads in order to maintain height and incendiaries were seen burning throughout the route. Only seven out of twenty-three Pathfinders dropped flares or target indicators so that the bomber stream had practically no aid. One Lancaster of No. 460 piloted

by Warrant Officer Goulevitch⁴ circled the target for ten minutes and saw only one target indicator and then bombed the approximate centre of existing fires, but most Australians unashamedly bombed on "estimated time of arrival". It was a night to test the fortitude of all crews and Pilot Officer Fayle⁵ of No. 467, after shaking off two fighters near Bremen with only minor damage, was then attacked near the target by an over-anxious mid-upper gunner of another Lancaster who obviously mistook Fayle's aircraft for a fighter approaching from above and astern. Fayle's bomb aimer was wounded and the Lancaster was heavily damaged and plunged down to 15,000 feet before it came under control once more. Then with oil flooding the aircraft, the windscreen covered in ice and the flying instruments out of action, Fayle bombed and returned under great difficulties.

TABLE NO. 53
LEIPZIG

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1943-44								
Oct 20-21	358	285	460	16	15	1,085	15	—
			467	13	13			—
Dec 3- 4	527	451	460	16	13	1,382	23	—
			463	1	1			—
			467	10	10			—
Feb 19-20	823	730	460	24	23	2,291	78	2
			463	18	17			1
			466	14	11			1
			467	17	17			—

On 3rd-4th December, although Leipzig was again covered with cloud, this time it rose only to 6,000 feet and the operation was a great success. One aircraft of No. 467 crashed when taking off, and one of No. 460 collided with another Lancaster and was forced to return prematurely with six feet of wing broken away, but the remaining twenty-four R.A.A.F. Lancasters encountered no difficulty. The bomber stream flew straight for Berlin turning south at the last moment and leaving enemy fighters circling the capital in expectation of a repetition of the previous night's raid. Crews arriving early over the target were thus untroubled and began

⁴ F-O J. Goulevitch, DFC, 414019. 100 Sqn RAF, 460 Sqn. Cabinet maker; of Ayr, Qld; b. Rudin, Poland, 21 Feb 1919.

⁵ F-O E. A. Fayle, 412936. 467 and 463 Sqns. Clerk; of Hay, NSW; b. Hay, 21 Feb 1919. Killed in action 20 Feb 1944.

well-placed fires which aided the later bombers. Fighters arrived towards the end and Warrant Officer Foran⁶ of No. 101 Squadron R.A.F. ordered his crew to abandon their aircraft after it was badly crippled near the last route turning point before Leipzig. The rear gunner was dead and the bomber on fire, but, before the men could escape, a second Me-110 attacked and Foran decided to remain fighting. His violent evasive action blew out the fire, but the mid-upper turret was now also put out of action and the gunner badly wounded. Foran dropped his bombs on Dessau, and, though practically defenceless, evaded a third fighter by skilful flying and safely flew his aircraft back to an English airfield. This raid devastated 564 acres or nearly 30 per cent of Leipzig and among the most heavily-damaged portion was the great collection of buildings designed for the Leipzig World Fair and converted to repair and assembly centres for Junkers aircraft. Many buildings in the big railway terminus were burnt out and a large wool combing factory heavily damaged.

After this heartening success, the third and largest raid on 19th-20th February, which opened the week of all out effort against *Luftwaffe* resources, was an anticlimax. The German fighters ignored a large-scale demonstration by mine-laying aircraft near Kiel and while investigating intruder activity over Dutch airfields, by an unlucky chance met the main bomber stream at the beginning of its journey. One Halifax of No. 466 was harassed persistently by three Ju-88's for a long part of the route and other Australians were forced to evade fighters. Adding to this dispersion of the bomber stream, incorrect wind forecasts upset the entire navigation plan. Most bombers arrived early at the scheduled turning points and milled round with greatly-increased risks from collisions as well as offering ideal targets for fighters. Twenty bombers were seen to go down in flames and another four as a result of collisions before the target was reached. The main stream was again early over Leipzig and crews of No. 460 who were in the first wave found Lancasters orbiting and bombing on all headings, even before the appointed time. When the Pathfinders laid their markers the attack settled down and most of the Australians were confident that a satisfactory concentration was achieved. On the following day, 184 American Fortresses made a precision attack on Leipzig and the result of these two attacks was extensive damage in five of the ten largest war factories, including the Erla aircraft works, the A.T.A.G. assembly plant and an aircraft-engine works.

In January 1944, in addition to Berlin, three other cities in central and northern Germany were attacked (Table No. 54), both because of their intrinsic importance and to spread enemy defences.

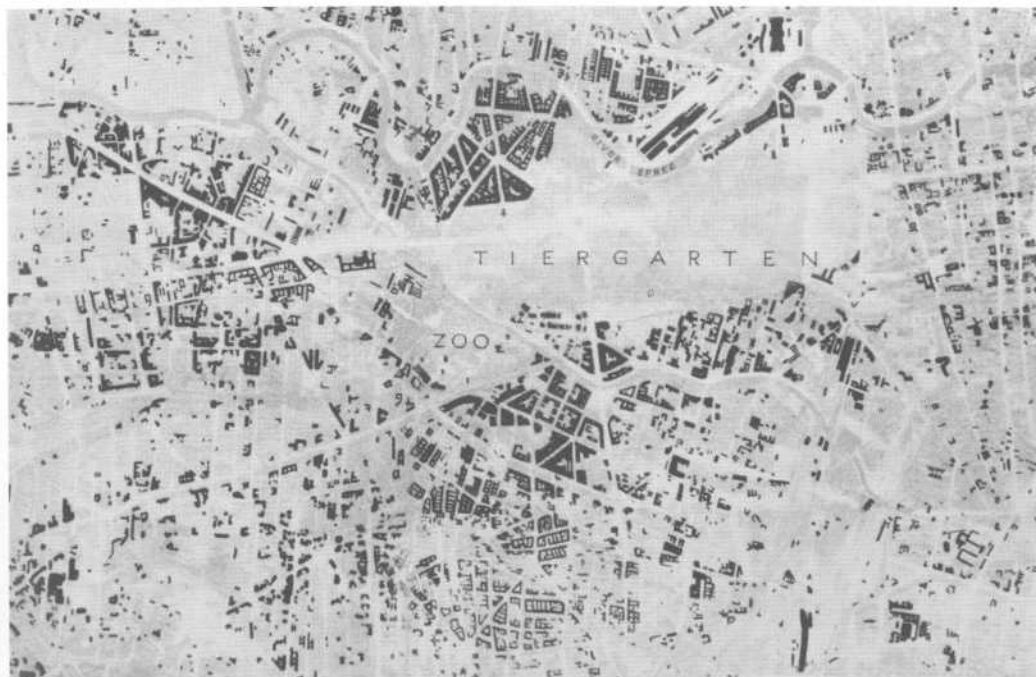
Stettin had been left undisturbed for over eight months. Distracted by a feint against Berlin the enemy fighter defences were caught napping until the raid was almost completed. Australian Lancasters in the van of the bomber stream saw only one night fighter, and at Stettin found the weather clear and the target markers well placed. Bombing began

⁶ F-O M. T. Foran, DFC, 412240. 101 and 166 Sqns RAF. Farmer; of Gilgandra, NSW; b. Coonabarabran, NSW, 8 Feb 1921.



(German sources)

During the Battle of Berlin in the winter of 1943-44, Dr Goebbels examines a map, of a Berlin district, detailing bombed and burnt-out areas. Solemn-faced civilians stand in front of air-raid debris.



(Air Ministry)

This map of central Berlin reveals the extent of the destruction (darkened areas) wrought by Bomber Command up to February 1944.



(German sources)

The Bomber Command successes against German towns during the winter of 1943-44 were purchased at great cost. In the first three months of 1944, 763 four-engined aircraft were lost. The Halifax shown above was shot down during a Berlin attack in January 1944. To the right a German officer examines the wreckage; one of the crew lies nearby.



(German sources)

Extracted from the wreckage of the turret, the body of a rear gunner lies near a crashed Lancaster also shot down in January 1944. The flying clothing has been opened to search the gunner's pockets for papers and personal possessions likely to interest *Luftwaffe* Intelligence. A group of German police stand nearby.

well and all the Australian reports were enthusiastic, but later the attack undershot to the west of the town and only about 20 per cent of all bombs actually hit the town. The hazards of a densely-packed bomber stream were increasing as the planned time over targets was cut to a minimum, and several Lancasters were forced to take evasive action to avoid bombs falling from aircraft flying directly overhead. Another freak result evident on this night was the destruction of a Ju-88 by Pilot Officer Balfour⁷ of No. 207 Squadron R.A.F. without a shot being fired. The night fighter was actually attacking a near-by Lancaster and approached Balfour's aircraft just as Balfour decided to climb steeply away, so that his port wing struck the fighter and sent it spinning down to crash and burn on the ground.

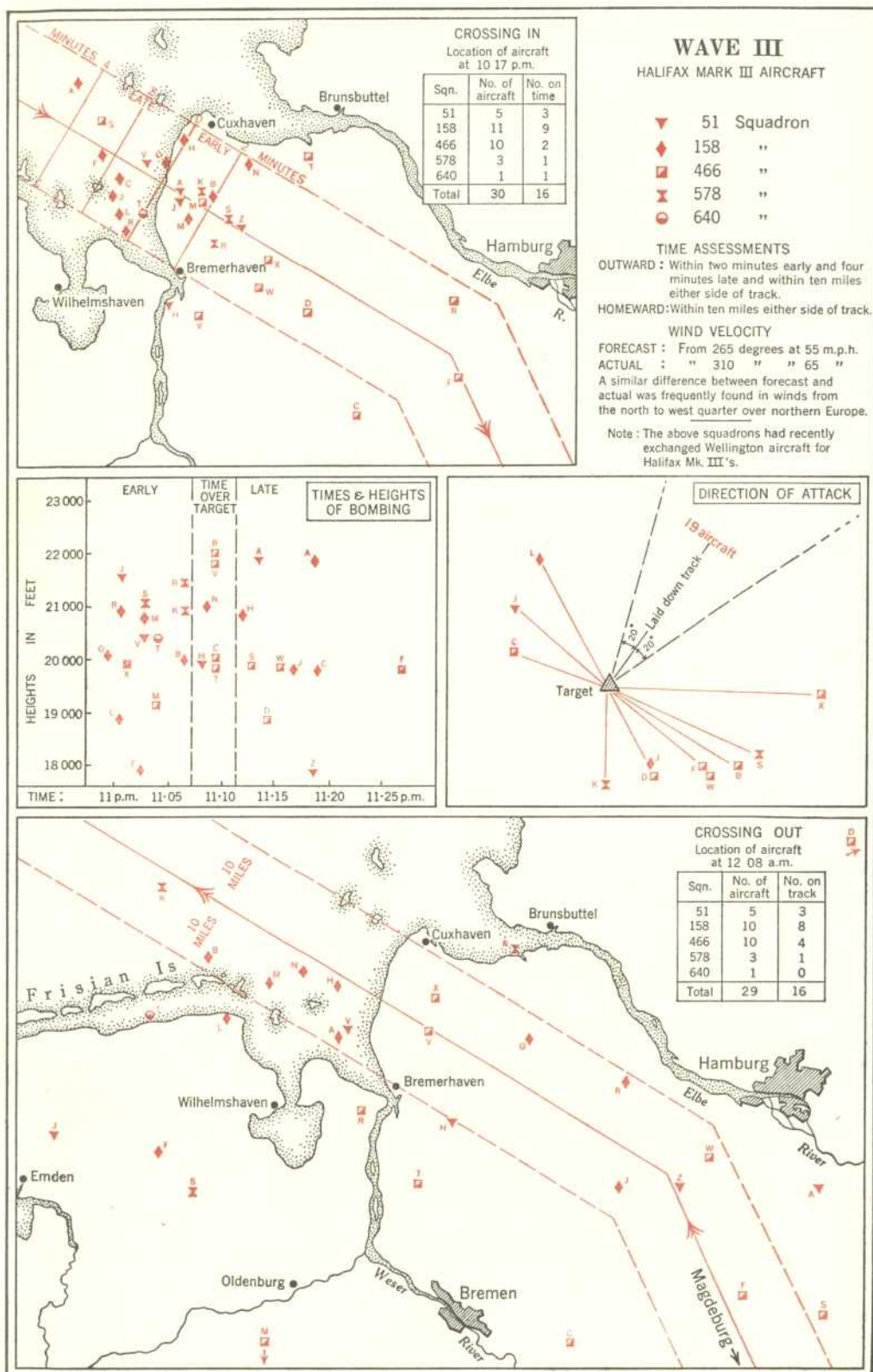
TABLE No. 54

CENTRAL AND NORTHERN GERMANY

	Target	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
		Dispatched	Attacking	Sqn No.	Disp	Atkg			
1944									
Jan 5- 6	Stettin	358	348	460	18	18	1,118	15	—
				463	8	7			—
				467	11	11			2
Jan 14-15	Brunswick	498	472	460	22	21	2,005	38	—
				463	13	11			—
				467	16	15			—
Jan 21-22	Magdeburg	648	585	460	21	19	2,024	55	1
				463	11	10			—
				466	16	13			1
				467	13	13			1

On 14th-15th January a rather larger force of Lancasters was employed for the first full-scale attempt against Brunswick, but on this occasion the fighters made early contact between Bremen and Hanover and eight Australian Lancasters suffered determined attacks. All finally escaped and even claimed damage to five of the attackers, although in the confused circumstances these claims could not be verified. In view of the relatively high losses the R.A.A.F. squadrons were extremely fortunate to avoid casualties especially as three Lancasters of No. 467 were damaged by incendiary bombs dropped from other aircraft. The raid as a whole was a failure, the Australians finding only scattered sky markers over

⁷ P-O D. C. Balfour, 416402; 207 Sqn RAF. Shop assistant; of Adelaide; b. Adelaide, 4 Oct 1922. Killed in action 14 Jan 1944.



thick cloud, with the result that aircraft were making opportunist attacks from all directions. Only a small part of the very heavy bomb load actually hit the aircraft-component and engineering factories which were the real targets of this attack.

Again on 21st-22nd January the raid on Magdeburg was another nearly total failure. The diversionary attack on Berlin failed to distract the enemy fighters which waited for the bomber stream near Hamburg and then flew with it to the target. Only one Australian Lancaster was attacked, but several crews found that their visual-warning radar sets were jammed

TABLE No. 55

STUTT GART

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1944								
Feb 20-21	598	552	460	21	21	1,990	9	—
			463	14	14			—
			466	11	10			—
			467	15	13			—
Mar 1- 2	557	503	463	13	11	1,739	4	—
			466	11	5			—
			467	15	12			—
Mar 15-16	863	813	460	24	24	2,609	36	1
			463	17	17			2
			466	17	16			2
			467	19	19			—

by enemy counter-measures and voiced the fear that fighters were homing on transmissions from these sets. One Halifax of No. 466 was badly damaged in a collision with another bomber and had to return early while several more R.A.A.F. aircraft were damaged by gun fire. Visibility at the target was good but enemy decoy markers misled the later Pathfinders so that nearly all the bombs fell outside the city. Australian crews were sharply divided in their reports, those early at the target declaring that only scattered incendiary fires were apparent while the late arrivals, who undoubtedly bombed decoys, were enthusiastic about the huge fires apparent on the ground. Only the southern suburbs sustained real damage with results of military value at the Krupp Crusonwerke tank factory.

Early in 1944 Stuttgart, another important centre of the German aircraft and components industries, was raided three times but continued to escape lightly (Table No. 55).

Incorrect wind forecasts on 20th-21st February again resulted in many crews reaching Stuttgart early, and Brill of No. 463 saw many Lancasters make premature attacks while he circled to await the Pathfinders. It was fortunate that a spoof raid on Munich, intruder activity over Dutch airfields, and a large demonstration by O.T.U. aircraft over the North Sea successfully pre-occupied German fighters. Most R.A.A.F. crews waited until the indicators went down, but as these were misplaced to the north of the city the most conscientious bombing was in fact the least effective. However, some valuable, if scattered, damage was done throughout the city, but the only target of special importance to the campaign against the R.A.F. which received bombs was the Bosch works, Germany's largest manufacturer of sparking plugs and fuel-injection pumps.

TABLE No. 56

ESSEN

	Total Force		RAAF Force			Tons of Bombs	Total aircraft lost	RAAF aircraft lost
	Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1944								
Mar 26-27	705	677	460	24	24	2,834	9	1
			463	15	14			—
			466	15	14			—
			467	16	16			—

The second attack on 1st-2nd March was made after a week of heavy snow falls at Yorkshire bases during which squadron maintenance had suffered considerably. None of the seventeen Lancasters of No. 460 originally detailed for this operation was actually dispatched and the R.A.A.F. aircraft which did take part reported many technical failures, with the result that an unwarrantably high proportion failed to attack. Nevertheless, with enemy fighters lured away to Munich or unable to find the bomber stream in dense cloud, casualties were fewer than for any previous raid of the same size. The Australians were very critical of the Pathfinder flares which were scattered and soon lost in cloud, but crews were nevertheless enthusiastic about the general success of the raid. This impression was confirmed by later reconnaissance although the considerable damage caused actually spread from Bad Cannstadt to the north-east of Stuttgart to Feuerbach in the north-west. The maximum strength raid a fortnight later was almost a complete failure, because after struggling against incorrectly forecast winds and many attacks by fighters the Australians arrived over Stuttgart to find Pathfinder markers in clusters miles apart with dummy enemy markers further adding to the confusion. Two pilots

of No. 460 described the attack as "irresponsible, scattered and unimpressive" and criticised the "wild bombing" which put most of the weight of the attack near fourteen villages to the south-west of the target.

On 26th-27th March two nights after the last of the raids on Berlin, Bomber Command went back in force to Essen for the first time in eight months (Table No. 56).

Australians engaged on their second tour of operations found conditions very unlike the bitter nights of a year previously for the notable Ruhr gun defences were strangely silent. Searchlights were still there in abundance but were blanketed by cloud, while enemy fighters had been drawn off by an attack an hour earlier on Courtrai and appeared over Essen

TABLE No. 57

SOUTHERN GERMANY

	Target	Total Force		RAAF Force			Tons of Bombs	Total air-craft lost	RAAF air-craft lost
		Dis-patched	Attack-ing	Sqn No.	Disp	Atkg			
1944									
Feb 24-25	Schweinfurt	734	662	460 463 466 467	17 17 16 17	17 14 12 16	2,152	33	2 2 — —
Feb 25-26	Augsburg	594	528	460 463 466 467	17 13 9 12	15 12 8 12	1,726	21	1 1 — 1
Mar 30-31	Nuremberg	795	608	460 463 466 467	24 18 16 17	22 17 12 16	2,148	95	3 — — 2

only when the bombers were withdrawing. Ground markers laid by means of Oboe could be seen through the clouds while sky markers purposely offset towards the east were provided both as a navigation aid to the bombers and as a lure for German gun fire. Most crews considered this an astonishingly easy trip and unhurriedly dropped their bombs in the centre of Essen. Extensive repairs had been made to Krupps but at least twenty-four large buildings in the works received new or additional damage.

The remaining winter attacks were directed against three towns in southern Germany (Table No. 57).

The third target for Bomber Command in the week expressly devoted to crippling the German Air Force was Schweinfurt, the chief enemy centre for production of ball bearings. A large force of American heavy bombers attacked on 24th February and that same night Bomber Command went out in strength.

To avoid the increasing difficulties shown by over concentration of the bomber stream a new device of splitting the force in two and attacking at an interval of two hours was attempted. More than 300 aircraft created diversions in various areas with the result that heavy opposition was only encountered along the last leg into the target. Here the Australians were unpleasantly surprised by the strength and vigour of the ground defences, and among several aircraft heavily damaged was a Lancaster of No. 467 carrying members of the R.A.F. Film Unit sent to make a complete record of the second phase of the raid. Australians in both waves submitted extremely optimistic reports and considered the marking ideal, but in fact the whole raid was misplaced and centred on the villages of Garstadt and Grafenrheinfeld up to five miles south of Schweinfurt.

Disappointing as were the February attacks on Leipzig, Stuttgart and Schweinfurt, Bomber Command achieved a very notable success at Augsburg on 25th-26th February. Again this raid followed immediately upon a heavy American daylight attack, and as at Schweinfurt the force was split into two halves. The R.A.A.F. Lancasters were in the first wave which flew southwards across France before turning east towards the target. Only a few fighters were encountered although many were airborne searching for the bomber stream. In cloudless weather the Australians were able to identify the river and other landmarks in relation to the Pathfinder flares and carefully dropped their incendiaries into the heart of the city. The second force including No. 466 met very few fighters which were presumably back at their bases refuelling at the critical time. From Saarbrücken the Halifaxes were guided by the tremendous fires raging in Augsburg and simply flew on to drop their loads into the heart of the conflagration and to secure excellent night photographs. Over 60 per cent of Augsburg was devastated in this one raid and nearly all the M.A.N. factory complex (the largest single producer of marine diesel engines) was damaged. Almost as badly affected was the works of Martin Schmittner, manufacturers of aircraft components.

Joy at such marked successes as the attacks on Essen and Augsburg was short lived for, on 30th-31st March during the last heavy raid of the winter, Bomber Command suffered its worst single reverse of the whole war. Ninety-five aircraft failed to return, another eleven were damaged beyond repair while the target at Nuremberg was only slightly damaged. All four Australian squadrons were again included in the force. From the outset everything went badly. Conditions over the North Sea made it impossible to arrange any large-scale diversion there as had proved so successful for the earlier Frankfurt-on-Main raids. Some fifty Halifaxes were sent mine-laying in Heligoland Bight but were ignored by the German controllers who concentrated night fighters in groups at Bonn and Frank-

furt-on-Main where they easily intercepted the bomber stream. The difficulty of predicting changeable March winds again led to serious errors in navigation so that the bombers soon spread over a broad belt to the north of the true track (see map on pp. 318-9). Moreover the high cloud which was expected to give adequate concealment along the route dispersed altogether over Belgium and left the aircraft exposed in the light of a half-moon and silhouetted against lower clouds. A running battle was fought over a distance of nearly 250 miles from Aachen eastwards and then southwards, with more and more fighters joining in as the enemy correctly divined the probable target. At least twenty Australian aircraft were intercepted, but although most of them escaped by skilful flying or spirited return fire, Australian losses included the very experienced Utz, a flight commander of No. 460, who was killed. Comparatively the Halifaxes suffered most heavily, losing thirty out of the total of ninety-three dispatched, and so No. 466 was fortunate that all its aircraft returned safely. Thirty burning aircraft were counted between Aachen and Nuremberg by Flight Lieutenant Smith⁸ of No. 467 and it is probable that at least fifty bombers were shot down before reaching the target. Another 187 failed to attack at all.

Up to this point reverses had been due to factors over which the force had but imperfect control, but even those aircraft which had fought through to Nuremberg found that their difficulties were by no means ended. The Pathfinders were forty-seven minutes late and the town itself was covered in cloud; Australians found hundreds of aircraft milling round after the planned time to bomb still anxiously seeking the Pathfinders' flares. Several collisions were narrowly averted and soon some aircraft began to bomb independently. One Lancaster of No. 460 eventually bombed a searchlight position which other aircraft had bombed, only to then see the first Pathfinder markers go down twenty miles north-east. Impatient crews were dropping their bombs everywhere, and those lacking H2S and thus relying on the incorrect forecast winds bombed places as far distant as Schweinfurt, twenty-five miles away, having drifted away in the belief that they were circling Nuremberg. Even when the indicators were dropped they could not be seen through the clouds, and sky markers were as far as ten miles apart so that, in desperation, even the most patient crews were at last forced to make the best approach they could and bomb on the marker they considered most reliable. The attack was inevitably widely scattered with no appreciable concentration of damage before the last of the now widely dispersed force left the scene of this signal failure.

The first three months of 1944 thus saw, in a restricted sense, a success for German night-fighter defences. During that period 763 four-engined aircraft and crews were shot down in major night raids against German cities. This loss was equivalent to 80 per cent of the aircraft and crews on active squadrons of Bomber Command at the beginning of

⁸ F-Lt M. F. Smith, DFC, 414734; 467 Sqn. Farmer; of Helidon, Qld; b. Flagstone Creek, via Allora, Qld, 16 Oct 1920. Killed in aircraft accident 17 Jun 1944.

the year.⁹ These staggering casualties convinced the German High Command that very soon large-scale night attack would have to be abandoned. In fact aircraft wastage was outstripping industrial capacity, but there was no shortage of aircrews thanks to the well-planned Empire Air Scheme and United Kingdom training organisations.

In the wider strategic field the bombing campaign had been a great success. German manpower was increasingly committed to active defence or production for defence of the homeland against bombing; external theatres of war were so starved that there also little offensive action was possible. Bomb damage in Germany, negligible before 1942 and only 3 per cent in December 1942, had risen by March 1944 to 30 per cent of the built-up area of towns attacked by Bomber Command. Vast as were the resources of German industry, and however impressive the increased production obtained under the energetic economic guidance of Albert Speer during 1944, it was believed that bombing had already greatly weakened real industrial capacity. The forced emphasis on fighter production threw total defence off balance. Not only the German bomber arm but the training organisation withered to such an extent that when, by unprecedented effort, huge quantities of fighter aircraft were built, there were few pilots competent to fly them. In March 1944 much of this final failure lay in the future, but in the very flush of apparent success, the German fighter strength was already waning, not numerically but in value. Although Bomber Command had not yet won the battle for air supremacy over Germany, it had sown many of the seeds of ultimate victory, and untired and unshaken by its heavy losses it was ready to strike again with added force and regularity throughout the spring and summer.

⁹ The total heavy-bomber strength was approx 1,150 in Jan 1944 but only about 950 were actually available for operations at any one time.

APPENDIX No. 1

BRITISH, AMERICAN, GERMAN, ITALIAN AND FRENCH SERVICE AIRCRAFT, 1939-45

In this list of aircraft, which details performance data for the various types, statements are included which will conflict with the recollections of some aircrew. Much research was undertaken among authoritative sources to ensure that the performance data should be as accurate as possible; but aircraft of the same type, manufactured in the same factory at the same time, will vary in performance according to the degree of maintenance, skill in handling and, particularly, the operational age of the engine or engines. Nevertheless, the performance data shown below can be regarded as typical.

The list illustrates the progressive improvements effected in several basic types of aircraft as more powerful engines and armaments were introduced: for example, the Spitfire, Messerschmitt 109 and 110, and Junkers 88 series. It includes only some of each series. If it had included them all the list would have been several times as long. For example, the aircraft known as the Me-110G had fourteen sub-types, a division made on a functional basis, the variations being in the armament and equipment necessary for different tasks.

The headings, it is hoped, are self-explanatory to the non-technical reader, save perhaps "service ceiling", which may be defined as the altitude at which the aircraft fails to climb at a rate in excess of 100 feet per minute, and distinct from "absolute ceiling" which is the altitude at which the aircraft refuses to climb higher. Maximum speeds at given altitudes are quoted because aircraft engines are designed, given the task of the aircraft, to produce an optimum efficiency at either low, medium or high levels.

On the few occasions where it has been found impossible to obtain even reasonably accurate information it was decided to leave a gap rather than insert data of the "informed-guess" variety.

The exacting task of research and compilation was undertaken principally by Mr L. H. Johnswood and Mr R. S. Gunter of the R.A.A.F. Historical Section, to whom the writer owes both thanks and congratulations.

BRITISH FIGHTER AIRCRAFT

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
BEAUFIGHTER— Mks I, Ic, If. Twin engines; crew 2	900 (normal) 1,620 (extra fuel)	345 at 12,250	30,000	4 x 20-mm & 6 or 7 x .303-in	Mks I & Ic could carry 1,000 lb
Mks II & IIf	1,770 (II) 1,510 (IIf)	337 at 22,000 329 at 20,400	32,600 29,000	4 x 20-mm & 6 x .303 -in	IIf night-fighter ver- sion. IIf similar, but carried torpedo.
Mks VI, VIc, VIf	1,810 1,210 (with 1,650-lb torpedo)	333 at 15,600	25,500	4 x 20-mm & 6 x .303 -in	
Mk Xf	1,625 1,470 (with 2,127-lb torpedo)	303 at 1,300	14,000	4 x 20-mm & 1 or 6 or 7 x .303-in and 8 60-lb or 90-lb rocket projectiles.	
Mk XIc	1,600 (with 500 lb bombs) 1,260 (with 1,000 lb bombs)	303 at 1,300	15,000	4 x 20-mm & 7 x .303 -in	
DEFIANT— Single engine; crew 2	580	304 at 17,000	30,000	4 x .303-in	Armament in single power-operated turret. Used also as glider tug

BRITISH FIGHTER AIRCRAFT—*continued.*

999

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
FULMAR— Mk II Single engine; crew 2	820	253 at 10,000	22,300	8 x .303-in or 4 x .50-in	Shipborne
GAUNTLET— Single engine; crew 1	424 626 (extra fuel)	225 at 15,000	33,200	2 x .303-in	
GLADIATOR— Single engine; crew 1	254 523 (extra fuel)	245 at 15,000	32,500	4 x .303-in	
HURRICANE— Mk I Single engine; crew 1	340 600 (extra fuel)	320 at 17,500 (a) 316 at 17,750 (b) 317 at 16,000 (c)	30,250 (a) 33,200 (b) 33,000 (c)	8 x .303-in	(a) De Havilland airscrew (b) Rotol airscrew (c) tropical version
Mks IIa, IIb & IIc	c. 500 1,000 (extra fuel)	342 at 22,000	36,000 to 41,000	8 or 12 x .303-in or 4 x 20-mm	IIb could take 1,000 lb of bombs
Mk IId "Tankbuster"	480	316 at 19,000	34,500	2 x 40-mm & 2 x .303-in	
Mk IIe	433	309 at 22,000	33,500	4 x 20-mm.	Carried 2 x 250-lb bombs

Mk IV	495	314 at 13,500	36,000	8 rocket projectiles & 2 x .303-in or 2 x 40-mm & 2 x .303- -in	
METEOR— Mk IV Twin engines; crew 1	450 1,000 (with fuselage and wing drop tanks)	585 at 10,000	47,000 (absolute)	4 x 20-mm 8 x 90-lb rocket pro- jectiles	Jet propelled. Could carry 2,000 lb bombs
MosQUITO— Mk II Twin engines; crew 2	1,705 1,765 (extra fuel)	370 at 14,000	32,000	4 x 20-mm & 4 x .303 -in	Fighter and night fighter
Mks XII, XIII, XVII	1,705 (XII, XVII) 1,860 (XIII)	370 at 14,000	35,000	4 x 20-mm	Night fighter
Mk XXX	1,770	407 at 28,000	38,000	4 x 20-mm	Night fighter
SPITFIRE— Mk I Single engine; crew 1	415 575 (extra fuel)	355 at 19,000	34,000	8 x .303-in	
Mks IIa & IIb	335 530 (extra fuel)	360 at 17,000	36,700	8 x .303-in or 4 x .303 -in & 2 x 20-mm	
Mks Va & Vb	335 480 (extra fuel) 1,135 (drop tanks)	375 at 20,250 377 at 19,200 (Vb)	37,700	8 x .303-in or 4 x .303 -in & 2 x 20-mm	Vb could carry 500 lb bombs

BRITISH FIGHTER AIRCRAFT—*continued.*

898

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
<i>SPITFIRE—continued.</i>					
Mk Vc	450 1,090 (drop tanks)	369 at 19,500	36,000	4 x 20-mm or 2 x 20-mm & 2 or 4 x .303-in or 8 x .303-in	Could carry 2 x 250-lb bombs "Tropical" Spitfire
Mk VI	1,170 (drop tank)	364 at 25,000	39,000	2 x 20-mm & 4 x .303-in	Only 100 built
Mks VII & VIII	1,200 (drop tank)	408 at 25,000	42,000	2 x 20-mm & 4 x .303-in or 4 x 20-mm	VIII could carry 1,000 lb bombs
Mk IX	430 950 (drop tank)	416 at 27,500	44,000	4 x 20-mm or 2 x 20-mm & 2 x .50-in or 2 x 20-mm & 4 x .303-in	Could carry 1,000 lb bombs
Mk XII	329 493 (drop tank)	395 at 18,000	40,000	2 or 4 x 20-mm & 4 x .303-in	Could carry 500 lb bombs
Mk XIV	850 (drop tank)	448 at 26,000	43,500	2 x 20-mm & 4 x .303-in or 2 x 20-mm & 2 x .50-in	Could carry 1,000 lb bombs
Mk XVI	980 (drop tanks)	405 at 22,500	41,500	2 x 20-mm & 2 x .50-in or 2 x 20-mm & 4 x .303-in	Could carry 1,000 lb bombs
Mks XXI & XXII	880	454 at 26,000	43,500	4 x 20-mm	Could carry 1,000 lb bombs

TEMPEST— Mk I Single engine; crew 1	827 (drop tanks)	457 at 25,000	38,800	4 or 6 x 20-mm or 2 x 20-mm & 4 x .50 -in	Sabre engine
Mk II	1,640 (drop tanks)	440 at 15,000	36,000	4 or 6 x 20-mm or 2 x 20-mm & 4 x .50- in	Centaurus engine
Mk V	1,530 (drop tanks)	427 at 18,500	35,000	4 x 20-mm	Sabre engine. Could carry to 2,000 lb bombs
TYPHOON— Mk Ib Single engine; crew 1	655 (with 1,000 lb bombs) 1,000	405 at 18,000	34,000	4 x 20-mm or 12 x .303-in	
WHIRLWIND— Twin engines; crew 1	340 (normal) 590 (maximum)	356 at 15,000	30,500	4 x 20-mm	Also night fighter and fighter-bomber. Could carry 1,000 lb bombs

BRITISH BOMBER AIRCRAFT
(including bomber transport, bomber/reconnaissance and torpedo bomber)

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
ANSON— Twin engines; crew 3-4	730 600	nil 500	178 at 7,000	18,000	2 x .303-in	Bomber/reconnaissance aircraft. Also transport and training
BATTLE— Single engine; crew 2-3	795	1,000	241 at 15,000	24,300	2 or 3 x .303-in	
BEAUFORT— Mk I Twin engines; crew 4	1,660	1,610	257 at 5,500	18,000	4 x .303-in	Bomber/reconnaissance
Mk II	1,880 1,510 1,410	nil 1,000 1,625 (torpedo)	278 at 14,000	23,000	4 x .303-in	
Mk IV	1,580	1,500	255 at 5,500	18,500	4 x .303-in	Bomber/reconnaissance
Mks V to VIII	1 780 1,070	2,127 (max. torpedo load)	234 at 5,000	26,000	9 x .303-in	Torpedo bomber/ reconnaissance

BLenheim Mk V (BISLEY)— Twin engines; crew 2-3	1,475	1,000	270 at 13,000	24,000	5 or 7 x .303-in	Could carry torpedoes
BOMBAY— Twin engines; crew 4	880 2,230 (extra fuel)	(24 troops) 2,000	192 at 6,500	21,800	2 x .303-in	Bomber transport; also air ambulance
HALIFAX— Mk I 4 engines; crew 7	2,780 1,910 1,000	3,000 9,250 12,000	262 at 17,750	18,000	8 or 12 x .303-in	Bomber/reconnaissance
Mks II & V	2,650 1,900 920	nil 6,500 13,000	256 at 19,000	21,000	10 x .303-in (9 in Mk V)	
Mk III	2,510 1,985 1,030	3,000 7,000 13,000	282 at 13,500	20,000	9 or 10 x .303-in	
Mk VI	2,650 2,400 1,260	500 5,500 13,000	312 at 22,000	23,500	9 x .303-in	
HAMPDEN— Mk I Twin engines; crew 4	1,885 1,725 788	2,000 3,000 6,000	247 at 13,800	19,000	6 x .303-in	

BRITISH BOMBER AIRCRAFT—continued.
(including bomber transport, bomber/reconnaissance and torpedo bomber)

672

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
LANCASTER— Mks I, III, X 4 engines; crew 7	2,580 1,660 1,040	7,000 14,000 22,000	287 at 11,500	24,500	8 or 10 x .303-in	18,000 lb normal max. bomb load. Mk III had Ameri- can-built Rolls- Royce Merlin engines. X was the Canadian-built ver- sion
Mk II	2,320 1,000	4,000 14,000	275 at 14,000	21,000	10 x .303-in	
LYSANDER— Mks I & II Single engine; crew 2	590 525	nil 560	224 at 10,000	23,000	3 x .303-in	Bomber/reconnaissance
MANCHESTER— Twin engines; crew 6	1,620 ?	8,100 10,350	264 at 17,000	19,300	8 x .303-in	Also transport aircraft
MOSQUITO— Mk B. IV Twin engines; crew 2	1,855	2,000	383 at 22,000	30,500	nil	

Mk B. V	2,200 1,720 1,640	nil 2,000 2,500	379 at 22,200	39,300	nil	Photo-recce bomber. Canadian-built: known as British Mk VII
Mk VI	1,650 1,270	1,000 2,000	380 at 13,000	33,000	4 x 20-mm & 4 x .303-in	Fighter-bomber
Mk IX	1,830	2,000	417 at 25,000	38,700	nil	
Mk XVI	1,370 1,795 1,870	4,000 2,000 1,000	415 at 28,000	36,000	nil	
Mk XVIII	1,730 1,550	nil 1,000	375 at 13,000	32,000	1 x 57-mm & 4 x .303-in	Fighter-bomber
Mks XX & XXV	2,040 1,620	1,000 3,000	380 at 14,000	33,000	nil	Canadian-built
STIRLING— Mk I 4 engines; crew 7	2,500 950	3,500 14,000	272 at 14,000	16,500	8 or 12 x .303-in	
Mk III	2,445 2,015 880	1,500 5,000 14,000	285 at 15,500	18,000	10 x .303-in	Also glider tug

BRITISH BOMBER AIRCRAFT—continued.
(including bomber transport, bomber/reconnaissance and torpedo bomber)

674

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
STIRLING— <i>continued.</i> Mks IV & V Crew 6	2,200	9,570 14 pass. 12 stretcher cases. 40 troops or 20 para- troops.	269 at 14,500	18,000	10 x .303-in	Also transport, air ambulance and glider-tug. Carried 2,180 lb of para- troops
SUNDERLAND— Mk I 4 engines; crew 10	2,530	2,000	204 at 5,000	14,100	7 x .303-in	Flying-boat. Bomber/ reconnaissance
Mk III Crew 11	2,137 1,968	2,000 4,000	212 at 1,500	17,200	7 x .303-in	Flying-boat. Bomber/ reconnaissance
Mk IV Crew 11	2,480 3,135	1,680 nil	247 at 2,000	15,000	7 x .303-in, or 8 x .50 -in & 4 x .303-in	Flying-boat. Bomber/ reconnaissance
SWORDFISH— Mk I Single engine; crew 2-3	528 672	1,500 nil	139 at 5,000	17,000	2 x .303-in	Torpedo bomber/ reconnaissance.

WALRUS— Mk I (Seagull V) Single engine; crew 2 to 4	600 338	nil 500	135 at 5,000	16,800	2 x .303-in	Reconnaissance/ bomber & air-sea rescue. Flying-boat
WARWICK— Mk I Twin engines; crew 5 or 6	2,200 1,780 1,460 845	1,700 3,875 5,275 8,000	246 at 15,000	18-20,000	8 x .303-in	Bomber & air-sea rescue
WELLINGTON— Mks Ia & Ic Twin engines; crew 6	2,250 1,805 1,200	1,000 2,750 4,500	235 at 15,500	19,000	6 x .303-in	Also torpedo bomber
Mk II Crew 5 or 6	2,445 1,725	1,150 3,500	254 at 17,500	18,000	4 or 6 x .303-in	Also paratroop carrier
Mk III Crew 5 or 6	2,040 1,200	1,500 4,500	261 at 12,500	19,500	6 or 8 x .303-in	
Mk IV Crew 6	1,510	4,500	229 at 13,000	18,000	6 x .303-in	
Mks V & VI Crew 4	2,250	4,500	312 at 32,000	36,700	4 x .303-in	Pressurised cabin
Mk VIII Crew 5	1,270 1,580 1,900	3,300 2,700 1,800	205 at 15,500	19,000	6 x .303-in	Also torpedo bomber —2 18-in torpedoes; carried Leigh light
Mk X Crew 5 or 6	1,885 1,325	1,500 4,500	255 at 14,000	18,250	8 x .303-in	Carried Leigh light

BRITISH BOMBER AIRCRAFT—continued.
(including bomber transport, bomber/reconnaissance and torpedo bomber)

676

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
WELLINGTON— <i>continued</i> . Mks XI & XII Crew 5 or 6	1,900 1,435	nil 3,600 (6 x 600-lb depth- charges)	255 at 13,000 243 at 700	18,000	6 x .303-in	Each carried a Leigh light
Mks XIII & XIV Crew 6	1,390	5,000	250 at 700	16,000	6 or 8 x .303-in	
WHITLEY— Mk V Twin engines; crew 4 or 5	1,700 1,405	3,750 5,000	230 at 16,400	20,000	5 x .303-in	Mks I to IV not used; also transport air- craft
Mk VII Crew 4 to 6	2,170 1,360	2,500 5,500	212 at 17,000	20,300	5 x .303-in	Adapted for Coastal Command use

OTHER BRITISH AIRCRAFT AND GLIDERS

Aircraft	Still Air Range With Associated Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
AUSTER— Mk III Single engine; crew 1 or 2	145	(a)	126 at 0	12,000	nil	Personal aircraft. (a) 3 persons, inc. crew. Mks IV & VI had increased range
DRAGON-RAPIDE— Twin engines; crew 1	556	1,452	157 at 0	16,700	nil	Transport aircraft. DH89B Dominie special training version for navigation & wireless pupils
HAMILCAR Glider— crew 2	—	17,500	150 (towed) 187 (diving)	—	nil	Hamilcar X was powered twin-engined version; ceiling 13,000 ft.; max. speed 145 m.p.h.
HORSA Glider— crew 2	—	(a)	?	—	nil	(a) 15 troops and equipment
HOTSPUR Glider II & III— crew 2	—	1,937 or 6 armd. troops	150 (towed) 170 (diving)	—	nil	Training and transport. Also a twin-Hotspur, with 16 passengers (8 in each fuselage)
MAGISTER— Single engine; crew 2	400	nil	145 at 1,000	18,000	nil	Training aircraft

OTHER BRITISH AIRCRAFT AND GLIDERS—*continued.*

678

Aircraft	Still Air Range With Associated Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
MASTER— Mks I, II, III Single engine; crew 2 or 1	450	nil	226 at 14,500	26,800	1 x .303-in	Training aircraft
OXFORD— Twin engines; crew 2 or 3	874 ?	nil 184	184 at 10,000	19,300	nil or 1 x .303-in	Training and transport
TIGER MOTH— Single engine; crew 1 or 2	258	385	109 at 0	14,000	nil	Also a seaplane version. Personal, training and transport

AMERICAN FIGHTER AIRCRAFT

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
KITTYHAWK— Mks I & Ia Single engine; crew 1 (P-40D & P-40E)	800 470 (with 500-lb bomb)	350 at 15,000	30,600	4 x .50-in (I) or 6 x .50-in (Ia)	Also fighter-bomber (max. 620 lb).

Mks II & III	1,190 (no bombs)	346 at 5,000	30,000	4 or 6 x .50-in	Also fighter-bombers. P-40 F & L (II) and M & N (III) Mk II max. load 600 lb; Mk III max. load 1,000 lb. See also Warhawk (below)
Mk IV	1,210 (no bombs)	352 at 11,000	32,500	6 x .50-in	Also fighter-bomber (max. load 1,000 lb). P-40M
LIGHTNING— P-38 E & F Twin engines; crew 1	500 (without drop tanks)	400 plus at 25,000	39,000	1 x 20-mm & 4 x .50-in	P-38D or F1-14 was photo recce. version (unarmed) P-38F was fighter-bomber version; max. 2,000 lb
P-38 J	1,910 900 (with 3,200 lb bombs)	414 at 25,000	43,800	1 x 20-mm & 4 x .50-in	Also fighter-bomber. Version without armament or bombs did pathfinder work
MUSTANG— Mks I & Ia (P-51) Single engine; crew 1	1,050	390 at 8,000	32,000	4 x .50-in & 4 x .30-in (Mk I) or 4 x 20-mm (Mk Ia)	
Mk II (P-51A)	1,910	402 at 12,000	34,000	4 x .5-in	Also fighter-bomber (max. load 1,000 lb)
Mk III	1,710	442 at 24,500	42,500	4 x .5-in	P-51 B & C. Also fighter-bomber (max. load 2,000 lb)

AMERICAN FIGHTER AIRCRAFT—*continued.*

680

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
MUSTANG— <i>continued.</i> Mk IV	2,160 1,075 (2,000 lb., max. fuel) 830 (1,000 lb, normal fuel)	437 at 24,500	41,500	4 or 6 x .5-in	P-51D. Also fighter-bomber (normal load 1,000 lb; max. load 2,000 lb)
P-51 H	1,530	486 at 30,000	40,000	6 x .5-in	Also fighter-bomber (max. bomb load 2,000 lb or 10 x 5-in rocket projectiles)
THUNDERBOLT— Mk I Single engine; crew 1 P-47D	1,970	440 at 29,000	40,000	6 or 8 x .5-in	Also fighter-bomber (max. 2,000 lb)
Mk II	1,000 510 (with 2,000 lb)	427 at 26,000	40,000	6 or 8 x .5-in	Also fighter-bomber
P-47M	1,200	470 at 30,000	42,000	6 or 8 x .5-in	Also fighter-bomber
TOMAHAWK— P-40, P-40B & P-40C Single engine; crew 1	890	340 at 15,000	30,000	2 x .50-in & 4 x .30-in	P-40C had self-sealing petrol tanks
WARHAWK— P-40N Single engine; crew 1	1,550	343 at 15,000	38,200	6 x .5-in	American original of Kittyhawk III Also fighter-bomber (max. 1,500 lb)

AMERICAN BOMBER AIRCRAFT
(including bomber/reconnaissance, bomber transport and torpedo bomber)

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
BALTIMORE— A-30A Twin engines; crew 4	1,100 875	1,000 2,000	308 at 11,000	22,300	10 x .3-in & 2 x .5-in	Bomber/reconnaissance
Mk III	950	2,000	302 at 11,000	22,000	10 x .3-in & 4 x .303-in	As used by RAF
Mk IV	830	2,000	300 at 13,000	19,000	10 x .3-in & 2 x .5-in	As used by RAF
Mks V & VI	1,000	2,000	305 at 11,600	19,000	7 x .5-in or 10 x .3-in & 2 x .5-in	As used by RAF
BOSTON— A-20A Twin engines; crew 2 to 4	1,200 817 610	nil 1,100 2,400	338 at 10,000	29,300	6 or 8 x .3-in	
Mk II Crew 3	840	1,500	312 at 15,000	32,600	6 x .303-in	As used by RAF Night fighter version named Havoc
Mks III, IIIa, IV Crew 4	1,570 710	2,000 4,000	320 at 11,000	24,500	5 x .5-in or 4 x .303-in or 4 x 20-mm and 6 x .303-in	Mks III & IIIa carried 2,000-lb torpedo

AMERICAN BOMBER AIRCRAFT—*continued*
(including bomber/reconnaissance, bomber transport and torpedo bomber)

682

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
BOSTON—continued.						
Mk V Crew 4	690 1,530	4,000 2,000	315 at 11,000	24,500	9 x .5-in	
CATALINA— PBV-5 Twin engines; crew 10	3,100 2,350	nil 1,300	196 at 7,500	14,700	2 x .5-in & 3 x .3-in	Flying-boat: bomb- ing, reconnaissance and air-sea rescue, transport & mine- laying. PBV-5A was am- phibian version
FLYING FORTRESS—						
Mk I 4 engines; crew 6 B-17C	3,000 2,000	nil 5,000	300 at 25,000	35,000	6 x .5-in & 1 x .3-in	As used by RAF
Mk II Crew 6 to 10	2,050 840	6,000 12,800	290 at 25,000	27,500	9 x .5-in	As used by RAF
Mk IIa Crew 8	1,900 1,650	7,000 9,600	295 at 25,000	32,000	9 x .5-in	As used by RAF

Mk III Crew 9	2,740 1,140	3,500 12,800	280 at 20,000	31,500 (a) 26,500 (b)	13 x .5-in	As used by RAF (a) min. weight (b) max. weight
B-17G Crew 11	2,350 2,250	4,000 6,000	295 at 30,000	36,000	13 x .5-in	
GLENN MARTIN (MARYLAND)— Twin engines; crew 3	1,210 1,080	1,500 2,000	278 at 11,800	28,000	8 x .303-in	As used by RAF; the Baltimore was de- veloped from this design
HAVOC— A-20G, H, K Twin engines; crew 3	1,255 505 1,300 650	2,000 4,000 2,000 A-20G 4,000 A-20G	322 at 15,000 317 at 10,000 A-20G	24,000	9 x .5-in	US original of RAF Boston, not to be confused with night- fighter Havoc, which was RAF version of Boston night- fighter
HUDSON— Mks I & II Twin engines; crew 4 to 5	1,355 ?	900 1,600	222 at 7,900	24,500	7 x .303-in	
Mk III	1,355 ?	400 1,000	252 at 15,000	24,500	7 x .303-in	Also air-sea rescue, with life-boat
Mk IV	1,465 ?	400 1,000	242 at 11,500	24,500	7 x .303-in	

AMERICAN BOMBER AIRCRAFT—*continued.*
(including bomber/reconnaissance, bomber transport and torpedo bomber)

684

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
LIBERATOR— Mk I 4 engines; crew 6	3,100 2,000 1,500	nil 4,000 8,800	320 at 16,500	36,000	4 x 20-mm & 5 x .303 -in or 6 x .5-in & 1 or 2 x .3-in	
Mk II Crew 6 to 10 B-24C	2,100 ?	5,000 8,000	?	34,000	7 x .5-in or 11 x .303- in	
Mk III Crew 8 B-24D	2,470 1,290	3,500 12,800	275 at 20,000	33,000	8 x .5-in & 4 x .303-in	As used by RAF. Coastal Command (G.R.V.) version had few guns and less armour to in- crease fuel-carrying capacity
Mk VI Crew 8	2,290 990	4,000 12,800	270 at 20,000	32,000	10 x .5-in	As used by RAF
B-24G, H & J Crew 10	2,500	3,000	300 at 30,000	34,000	6 or 10 x .5-in	American. Max. bomb load 16,000 lb

MARAUDER— Mk II & III Twin engines; crew 6 or 7	1,200	4,000	305 at 15,000	32,500	5, 11, or 12 x .5-in	B-26B, C, F & G. As used by RAF. Also torpedo bomber
B-26B & C Crew 5 or 6	1,800 1,150 1,075	nil 3,000 5,200	285 at 5,000	23,400 21-25,000 (a)	4 x .5-in & 2 x .3-in (B-26B) 8 or 12 x .5-in (B-26C)	American. (a) B-26B only
MITCHELL— Mk I (B-25B) Twin engines; crew 5 or 6	1,300	3,000	?	23,500	4 x .5-in & 1 x .3-in	As used by RAF
Mk II B-25C & D Crew 5 or 6	1,975 1,375	nil 3,200	266 at 11,500	24,600	10 x .5-in	
B-25G Crew 4	1,375	3,200	272 at 5,000	25,000	1 x 75-mm & 8 x .5-in	B-25G was first aircraft to have a 75-mm cannon as well as .5-in MG
B-25H Crew 5	1,375	3,200	272 at 5,000	25,000	1 x 75-mm & 12 or 14 x .5-in	
Mk III B-25J Crew 5	1,800 1,450	1,600 3,200	272 at 5,000	25,000	13 x .5-in	
MUSTANG— A-36A Single engine; crew 1	800	1,000	310 at 5,000	29,400	6 x .5-in	Dive bomber version

AMERICAN BOMBER AIRCRAFT—*continued.*
(including bomber/reconnaissance, bomber transport and torpedo bomber)

686

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb.)				
VENTURA— Mk IV Twin engines; crew 4	1,375	5,000	298 at 14,500	25,000	4 or 7 x .5-in & 2 x .3-in or 2 x .5-in & 6 or 8 x .303-in	

OTHER AMERICAN AIRCRAFT AND GLIDERS (Transport)

DAKOTA— C-47A Twin engines; crew 2 to 4	2,050 1,600	2,000 6,700	217 at 10,000	24,000	nil	American designation C-47 Skytrain. Transport aircraft. Version modified for paratroops (27) designated C-53 Skytrooper
HADRIAN GLIDER— (CG-4A) Crew 2	—	3,710 5,210 (13 troops)	125 (towed)	—	nil	
LODESTAR— Mk II (C-60A) Twin engines; crew 3	2,300 1,200	1,450 5,000	269 at 15,000	20,100	nil	18 paratroops

GERMAN FIGHTER AIRCRAFT

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
ARADO— Ar-196 Single engine; crew 2	600 540 (220 lb bombs)	195 at 0 193 at 13,120	23,000	2 or 3 x 7.9-mm & 2 x 20-mm	Reconnaissance float plane
ARADO Ar-234 Twin jet engines; crew 1	900	470 at 25,000	37,070	2 or 4-5 x 20-mm	Also fighter-bomber
DORNIER— Do-217J Twin engines; crew 4	2,400	330 at 22,000	27,000	4 x 20-mm & 4 x 7.92-mm & 2 x 13-mm	Night-fighter version of 217E bomber
FOCKE-WULF— FW-190A Single engine; crew 1	1,250 960 (550 lb bombs) 465 (1,100 lb bombs)	385 at 19,000	36,000	4 x 20-mm & 2 x 13-mm or 2 x 7.92-mm; or 2 x 20-mm; or 2 x 7.9-mm & 2 x 20-mm	Fighter & fighter-bomber. Max. bomb load 2,200 lb
FW-190A-4/U-8	960	320 at 19,000	28,500	2 x 20-mm	As fighter-bomber: bomb load from 550 to 1,100 lb
FW-190D	750	435 at 2,500	39,000	1 x 30-mm & 2 x 13-mm & 2 x 20-mm	As fighter-bomber: bomb load from 1,170 lb to 1,720 lb

GERMAN FIGHTER AIRCRAFT—*continued.*

688

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
JUNKERS— Ju-88C-2 Twin engines; crew 3	1,760	295 at 14,000	24,200	1 or 3 x 20-mm & 5 x 7.9-mm; or 5 x 7.9 & 1 x 13-mm; or 3 x 20-mm & 2 x 7.9-mm; or 1 x 15-mm & 2 x 20- mm & 2 x 7.9-mm; or 1 x 15-mm & 2 x 20-mm & 1 x 13- mm & 1 x 7.9-mm	Night fighter & fighter- bomber. Max bomb load 1,100 lb
Ju-88C-5 Crew 3	1,620	347 at 17,500	30,200	3 x 7.9-mm & 1 x 15 &/or 20-mm or 4 x 7.9-mm or 2 x 7.9-mm & 2 x 13- mm	
Ju-88C-6 Crew 2 to 3	1,620	347 at 20,000	30,200	1 or 3 x 20-mm & 3 x 7.9-mm & 1 x 13- mm or 7.9-mm & 1 x 13-mm or 2 x 7.9-mm	Also night fighter
MESSERSCHMITT— Me-109E Single engine; crew 1	400	355 at 18,000	36,000	2 x 20-mm & 2 x 7.9- mm; or 4 x 7.9-mm	

Me-109F	440	371 at 22,000	38,000	2 x 7.9-mm & 1 x 15 or 20-mm or 2 x 7.9-mm & 1 x 15 or 20-mm & 2 x 20-mm	Also night fighter and fighter-bomber
Me-109F-4	560	360 at 22,000	33,500	2 x 7.9-mm & 1 x 15 or 20-mm	Fighter-bomber version of Me-109F
Me-109G	1,045 550 (with 550 lb bombs)	400 at 22,000	38,500	2 x 7.9-mm or 2 x 13-mm & 1 x 30-mm or 3 x 20-mm; or 2 x 13-mm & 3 x 20-mm or 2 x 20-mm & 1 x 15-mm	Also night fighter and fighter-bomber
MESSERSCHMITT—					
Me-110C & E Twin engines; crew 2	1,230 (with 2,640 lb bombs) 730 (with 4,850 lb bombs)	360 at 22,000	32,000	5 x 7.9-mm & 2 x 20-mm or 1 x 30-mm	
Me-110F Crew 2 to 3	1,900 (extra fuel) 735 (3,920 lb bombs)	360 at 20,000	32,000	2 or 4 x 20-mm & 5, 4 or 6 x 7.9-mm. Sometimes 2 rekt. projectiles.	Also night fighter and fighter-bomber
Me-110G Crew 2	1,700 (extra fuel) 930	360 at 20,000	34,800	5 or 6 x 7.9-mm & 2 or 4 x 20-mm or 1 x 30-mm; or 4 x 7.9-mm & 3 or 5 x 20-mm or 1 x 30 & 1 x 15-mm	There were 14 subtypes to the G series, including reconnaissance, night fighter, heavy fighter and fighter-bomber

GERMAN FIGHTER AIRCRAFT—*continued.*

069

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
MESSERSCHMITT— Me-163 Single engine; crew 1	8-12 mins (full power) 1 hour (power on and off)	550 at 20,000	52,500	2 x 20-mm or 30-mm	Designated Komet Rocket-propelled
MESSERSCHMITT— Me-262 Twin jet engines; crew 1	440	525 at 22,960	39,360	2 or 4 x 30-mm & 3 x 20-mm; or 4 x 30-mm	Also fighter-bomber, reconnaissance and training. Max. bomb load 2,200 lb

GERMAN BOMBER AIRCRAFT

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
BLOHM & VOSS— BV-222 6 engines; crew 11	3,700	—	210 at 6,500	26,000	2 x 13-mm & 5 x 7.9- mm	Flying-boat; also troop carrying

GERMAN BOMBER AIRCRAFT—*continued.*

DORNIER— Do-17 Twin engines; crew 4	1,440 890	1,100 2,200	255 at 15,000	21,000	1 x 7.9-mm & 1 x 20-mm; or 5 or 7 x 7.9-mm; or 3 x 7.9-mm & 1 x 13-mm & 1 x 20-mm	Do-17Z (Do-215)
DORNIER— Do-24 3 engines; crew 5 or 6	2,050 1,710 1,250	nil 1,320 3,300	210 at 10,000	21,500	3 x 13-mm & 1 x 20-mm or 1 x 13-mm & 1 x 20-mm & 2 x 7.9-mm	Flying-boat. Reconnaissance, air/sea rescue and bombing
FOCKE-WULF— FW-200C 4 engines; crew 8 Condor	2,200	3,300	240 at 13,000	24,000	2 x 20-mm, 1 x 13-mm, 2-4 x 7.9-mm or 13-mm, 1 x 7.9-mm, 13-mm or 20-mm	Long-range reconnaissance bomber
HEINKEL— He-111H Twin engines; crew 4 to 6	1,510 1,390	2,200 6,200	255 at 16,000	c. 25,000	1 or 7 x 7.9-mm & 2 x 20-mm; or 2 x 20-mm & 1 x 13-mm & 6 x 7.9-mm	Also torpedo bomber and glider tug
He-111Z 5 engines; crew 8	1,180	12,300	295 at 19,500	?	?	“Zwilling” Bomber, glider tug or transport. Twin-fuselage version of normal He-111

GERMAN BOMBER AIRCRAFT—*continued.*

692

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
HEINKEL— <i>continued.</i> He-115 Twin engines; crew 4	1,305	1,760	206 at 11,150	21,320	1 x 20-mm & 4 x 7.9-mm	Float plane—torpedo, mine or bombs
HEINKEL— He-177 4 engines; crew 7 to 8	3,560 3,150 1,315 580	1,100 2,200 15,800 22,000	300 at 19,000	21,000	9 x 13-mm or 4 x 20-mm & 4 x 13-mm	Two airscrews only, engines paired
JUNKERS— Ju-86K Twin engines; crew 4	1,555	2,200	224 at ?	?	3 x 7.9-mm	
JUNKERS— Ju-87B Single engine; crew 2 Popular name—Stuka	410 425	3,100 1,100	225 at 15,000	25,000	3 or 4 x 7.9-mm	Dive bomber
JUNKERS— Ju-88A4-14 Twin engines; crew 4	1,310 1,171 853	2,200 4,400 6,400	295 at 14,000	24,200	1 x 20-mm & 6 or 7 x 7.9-mm	Also torpedo bomber

Ju-88A-5 Crew 4	1,190 847	4,400 6,400	253 at 14,000	19,900	6 or 7 x 7.9-mm & 1 x 20-mm; or 5 x 7.9-mm & 1 or 2 x 7.9-mm &/or 1 x 20-mm	Also reconnaissance and torpedo bomber
Ju-88A-6 Crew 4	1,400	4,950	281 at 16,000	26,700	4 x 7.9-mm & 1 x 15-mm	Also dive bomber and torpedo bomber
Ju-88B (Ju-188) Crew 3 to 4	1,500	4,400	325 at 20,000	33,000	8 to 10 x 7.9-mm; or 4-6 x 7.9-mm & 2 x 13-mm; or 1 x 20-mm & 2 x 13-mm & 2 x 7.9-mm; or 2 x 20-mm & 2 x 13-mm; or 2 x 20-mm & 1 x 13-mm & 2 x 7.9-mm	Bomber/reconnaissance
Ju-88S-1 Crew ?	1,620	4,400	370 at 26,000	30,000	1 x 13-mm & 1 x 7.9-mm	
JUNKERS— Ju-290A-2, A-8 4 engines; crew 7	3,260 3,785	2 x Hs-293 glider bombs nil	280 at 18,000	20,000	1 x 15 or 20-mm & 2 x 13-mm & 4 or 6 x 7.9-mm	Oversea reconnaissance, anti-ship-ping. Hs-293 glider bomb was radio-controlled and rocket-propelled

OTHER GERMAN AIRCRAFT

694

Aircraft	Still Air Range With Associated Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
FOCKE-WULF— FW-200B 4 engines; crew 3	1,242	26 passen- gers or 30 fully-armed troops	260 at 8,530	24,272	nil	
FIESELER— Fi-156 Single engine; crew 2 to 3 Storch	320 545 (extra fuel)	nil	109 at 0	17,000	1 x 7.9-mm	Army co-operation and communica- tion
JUNKERS— Ju-52 3 engines; crew 3 to 4	790 530	4,000 (or 22 troops) 5,060	165 at 0	20,000	5 x 7.9-mm; or 4 x 7.9-mm & 1 x 20 or 30-mm	Transport and troop carrier. Some- times used as glider tug
JUNKERS— Ju-90 4 engines; crew 3 to 5	1,630 (max. fuel) 810	5,000 9,000 (or 40 troops)	218 at 3,500	15,000	3 or 4 x 7.9-mm or 1 x 13-mm & 1 or 2 x 7.9-mm	Transport and troop carrier. Possible glider tug also
JUNKERS— Ju-290A-1 4 engines; crew 4 to 7	2,010 1,030	10,000 19,000	248 at 18,000	19,000	2 x 20-mm & 1 x 13- mm & 4 or 6 x 7.9-mm	Transport and glider tug. Estimates of troop-carrying capacity vary from 40 to 60

MESSERSCHMITT— Me-323 6 engines; crew 5 to 7	720 140	26,900 44,800 (or 120-130 fully- equipped troops)	195 at 13,000	23,000	18 x 7.9-mm	
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ITALIAN FIGHTER AIRCRAFT

Aircraft	Still Air Range (Statute Miles)	Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
FIAT— CR. 42 Single engine; crew 1 Freccia	535	270 at 13,100	31,000	2 x 12.7-mm or 1 x 12.7-mm & 1 x 7.7-mm	
FIAT— G.50 Single engine; crew 1 Falcho	530	300 at 14,500	35,430 (absolute ceiling)	2 x 12.7-mm or 2 x 7.7-mm & 2 x 12.7- mm	Could take 317 lb bombs
MACCHI— C.200 Single engine; crew 1 Saetta	570 1,000	310 at 15,000	33,000	2 x 12.7-mm or 2 x 7.7-mm & 2 x 12.7- mm	
C.202 Single engine; crew 1	?	330 at 18,000	34,500	2 x 12.7-mm ; some- times 2 x 7.2-mm	

ITALIAN BOMBER AIRCRAFT

969

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
CANT— Z.501 Single engine; crew 4 to 5	2,450	1,100	152 at 0	?	4 x 7.7-mm	Flying-boat; bomber/ reconnaissance
CANT— Z.1007bis 3 engines; crew 4 to 5	1,650 800	1,100 2,600	280 at 15,000	26,500	2 x 12.7-mm & 2 x 7.7-mm	
CAPRONI— Ca.311 Twin engines; crew 3 or 4	1,315	880	260 at 13,000	?	4 x 7.7-mm	
Ca.312bis Twin engines; crew 3 or 4	1,000 220	nil 1,700	230 at 13,120	23,000	4 x 7.7-mm	
FIAT— B.R.20 Twin engines; crew 4	1,350	2,200	255 at 13,500	25,000	1 x 12.7-mm & 2 x 7.7-mm	
GHIBLI— Twin engines; crew 3 or 4	1,210 530	nil 740	158 at 0	?	3 x 7.7-mm	
PIAGGIO— P.108B 4 engines; crew 7	2,500	?	250 at 13,120	26,000	?	Heavy bomber

SAVOIA-MARCHETTI— SM.79 3 engines; crew 4 or 5 Sparviero	1,190	2,750	255 at 13,000	27,880	3 x 12.7-mm & 2 x 7.7-mm	Also torpedo bomber and reconnaissance
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FRENCH AIRCRAFT—VARIOUS

Aircraft	Still Air Range With Associated Bomb Load		Maximum Speed in M.P.H. (Altitude in Feet)	Service Ceiling (Feet)	Gun Armament	Remarks
	Statute Miles	Load (lb)				
DEWORTINE— D.520 Single engine; crew 1 (Fighter)	?	nil	340 at 16,000	32,500	1 x 20-mm & others	
LOIRE ET OLIVIER— Leo.45 Twin engines; crew 4 (Bomber)	1,600	?	300 at 13,120	26,000	?	
MORANE-SAULNIER— 406 Single engine; crew 1 (Fighter)	?	nil	298-310 at ?	?	1 x 20-mm & 2 MGs	
POTÉZ— 63 Twin engines; crew 2 or 3 (Fighter-Bomber)	807	992	280 at 13,000	26,240	2 MGs	

APPENDIX 2

ABBREVIATIONS AND DEFINITIONS

AAEF— <i>Australian Air Expeditionary Force.</i>	Aust— <i>Australia, Australian.</i>
AAF— <i>Allied Air Forces.</i>	AVM— <i>Air Vice-Marshal.</i>
AAMC— <i>Australian Army Medical Corps.</i>	BAF— <i>British Air Force.</i>
AASF— <i>Advanced Air Striking Force.</i>	BC— <i>British Columbia.</i>
AAU— <i>Air Ambulance Unit.</i>	Bd— <i>Board.</i>
AC— <i>Aircraftman, Army Cooperation.</i>	Bde— <i>Brigade.</i>
ACF— <i>Australian Comforts Fund.</i>	BEF— <i>British Expeditionary Force.</i>
ACH— <i>Area Combined Headquarters.</i>	BGS— <i>Bombing and Gunnery School; Brigadier, General Staff.</i>
Act— <i>Acting.</i>	Blimps— <i>Non-rigid airships used by US Navy for sea patrols.</i>
ADEM— <i>Air Defences, Eastern Mediterranean.</i>	Bn— <i>Battalion.</i>
ADHQ— <i>Air Defence Headquarters.</i>	BRA— <i>Bombing Restriction Area.</i>
Adm— <i>Admiral.</i>	Brig— <i>Brigadier.</i>
Admin— <i>Administration.</i>	BV— <i>Blohme and Voss.</i>
AEAF— <i>Allied Expeditionary Air Forces.</i>	CAF— <i>Citizen Air Force.</i>
AF— <i>Air Force.</i>	Capt— <i>Captain.</i>
AFC— <i>Air Force Cross, Australian Flying Corps.</i>	CAS— <i>Chief of Air Staff.</i>
AFU— <i>Advanced Flying Unit.</i>	Cd— <i>Command.</i>
AG— <i>Air Gunner.</i>	Cdr— <i>Commander.</i>
AHB— <i>Air Historical Branch (Air Ministry).</i>	CGI— <i>Chief Ground Instructor.</i>
AHQ— <i>Air Headquarters.</i>	CGS— <i>Chief of General Staff.</i>
AI— <i>Aircraft Interception (airborne radar equipment).</i>	Ch— <i>Chief.</i>
AIF— <i>Australian Imperial Force.</i>	Chem— <i>Chemical.</i>
AIL— <i>Air Intelligence Liaison.</i>	CIGS— <i>Chief of Imperial General Staff.</i>
Air Cmdre— <i>Air Commodore.</i>	C-in-C— <i>Commander-in-Chief.</i>
ALG— <i>Advanced Landing Ground.</i>	CO— <i>Commanding Officer.</i>
AMF— <i>Australian Military Forces.</i>	Co— <i>County.</i>
ANS— <i>Air Navigation School, Advanced Navigation School.</i>	Col— <i>Colonel, Columns.</i>
AOC— <i>Air Officer Commanding.</i>	Comd— <i>Commanded.</i>
AOC-in-C— <i>Air Officer Commanding-in-Chief.</i>	Comdt— <i>Commandant.</i>
AOS— <i>Air Observer School.</i>	Commn— <i>Communication.</i>
ARC— <i>Aircrew Reception Centre.</i>	Commnr— <i>Commissioner.</i>
Armd— <i>Armoured.</i>	Co-op— <i>Cooperation.</i>
Arty-R— <i>Artillery Reconnaissance.</i>	Cpl— <i>Corporal.</i>
AS— <i>Anti-submarine, air support.</i>	CS— <i>Chief of Staff.</i>
ASC— <i>Air Support Control.</i>	DAF— <i>Desert Air Force.</i>
Asdic— <i>Shipborne sub detecting apparatus (from Anti-Submarine Detection Investigation Committee).</i>	DAOC— <i>Deputy Air Officer Commanding.</i>
ASR— <i>Air-Sea Rescue.</i>	DAOC-in-C— <i>Deputy Air Officer Commanding-in-Chief.</i>
Asst— <i>Assistant.</i>	DC— <i>Depth-Charge.</i>
ASV— <i>Air-to-Surface Vessel (airborne radar search apparatus).</i>	DCAS— <i>Deputy Chief of Air Staff.</i>
A-Tk— <i>Anti-Tank.</i>	Def— <i>Defence.</i>
	Dep— <i>Deputy.</i>
	DH— <i>De Havilland.</i>
	Dir— <i>Director.</i>
	Div— <i>Division.</i>

E/A—*Enemy Aircraft.*
 EATS—*Empire Air Training Scheme.*
 Ech—*Echelon.*
 EFTS—*Elementary Flying Training School.*

FAA—*Fleet Air Arm.*
 FBRD—*Flying-Boat Repair Depot.*
 FCU—*Fighter Control Unit.*
 Fd—*Field.*
 F-Lt—*Flight Lieutenant.*
 F-O—*Flying Officer.*
 F-Sgt—*Flight Sergeant.*
 FW—*Focke-Wulf.*
 Fwd—*Forward.*

GAF—*German Air Force.*
 GCI—*Ground controlled Interception.*
 Gds—*Guards.*
 Gee—*Airborne semi-radar position-finding device.*
 Gen—*General.*
 GOC—*General Officer Commanding.*
 GP—*General Purpose.*
 Gp Capt—*Group Captain.*
 GR—*General Reconnaissance.*
 GSO 2—*General Staff Officer Grade 2 (Major).*

HCU—*Heavy Conversion Unit.*
 He—*Heinkel.*
 HQ—*Headquarters.*
 H2S—*Airborne-position-finding device.*

IAF—*Italian Air Force.*
 i/c—*in charge.*
 IFF—*Identification Friend-or-Foe; air-borne radar identification device.*
 IG—*Inspector General.*
 Imp—*Imperial.*
 Ind—*Indian.*
 Inspr—*Inspector.*
 Intell—*Intelligence.*
 ITS—*Initial Training School.*

JATP—*Joint Air Training Plan.*
 Jock Cols—*Mobile units of less than divisional strength used in Western Desert. After Maj-Gen J. C. (Jock) Campbell, V.C.*
 Ju—*Junkers.*

LAC—*Leading Aircraftman.*
 LASU—*Local Air Supply Unit.*
 LFS—*Lancaster Finishing School.*
 LG—*Landing Ground.*
 LGE—*Landing Ground Emergency.*

LH—*Light Horse.*
 Lt—*Lieutenant.*
 Lt-Col—*Lieutenant-Colonel.*
 Lt-Gen—*Lieutenant-General.*

MAAF—*Mediterranean Allied Air Force.*
 Maj—*Major.*
 Maj-Gen—*Major-General.*
 MATAF—*Mediterranean Allied Tactical Air Force.*
 Mc—*Macchi.*
 MDS—*Magnetic Detection of Submarines.*
 ME—*Middle East.*
 Me—*Messerschmitt.*
 Med, Medit—*Mediterranean.*
 MG—*Machine-gun.*
 MHR—*Member of the House of Representatives.*
 MLA—*Member of Legislative Assembly.*

NACAF—*North-West African Coastal Air Force.*
 NASAF—*North-West African Strategic Air Force.*
 NATAF—*North-West African Tactical Air Force.*
 NCO—*Non-commissioned Officer.*
 NWA—*North-Western Area.*
 NZ—*New Zealand.*

O—*Observer.*
 Oboe—*Target-marking and blind-bombing device utilising radio beams.*
 OBU—*Operational Base Unit.*
 Offr—*Officer.*
 OHQ—*Overseas Headquarters.*
 Ops—*Operations.*
 Opnl—*Operational.*
 ORB—*Operations Record Book.*
 Orgn—*Organisation.*
 OTU—*Operational Training Unit.*

P—*Pilot.*
 PDRC—*Personnel Despatch and Reception Centre.*
 PFF—*Pathfinder Force.*
 P-O—*Pilot Officer.*
 POW—*Prisoner of War.*
 PRC—*Personnel Reception Centre.*

RAAF—*Royal Australian Air Force.*
 RAF—*Royal Air Force.*
 RCAF—*Royal Canadian Air Force.*
 RDF—*Radio Direction Finding (Radar).*
 Reco—*Reconnaissance.*
 Regt—*Regiment.*

Reqmnts—*Requirements.*

RFC—*Royal Flying Corps.*

RM—*Royal Marines.*

RNAS—*Royal Naval Air Service.*

RNZAF—*Royal New Zealand Air Force.*

SAAF—*South African Air Force.*

S. Af—*South Africa.*

SAO—*Senior Administration Officer.*

SASO—*Senior Air Staff Officer.*

SE—*Single-engined.*

SESO—*Senior Engineer Staff Officer.*

SFTS—*Service Flying Training School.*

Sgt—*Sergeant.*

Sigs—*Signals.*

SM—*Savoia Marchetti.*

SNO—*Senior Naval Officer.*

Sp Gp—*Support Group.*

Sqn—*Squadron.*

Sqn Ldr—*Squadron Leader.*

Stn—*Station.*

Sub—*Submarine.*

SWPA—*South-West Pacific Area.*

Tac-R—*Tactical Reconnaissance.*

TAF—*Tactical Air Force.*

TE—*Twin-engined.*

Tech—*Technical.*

Tps—*Troops.*

Trng—*Training.*

U—*Unit.*

USAAF—*United States Army Air Force.*

USN—*United States Navy.*

WAG—*Wireless Air Gunner.*

W Cdr—*Wing Commander.*

WDAF—*Western Desert Air Force.*

WDF—*Western Desert Force.*

W Ldr—*Wing Leader.*

W-O—*Warrant Officer.*

W-T—*Wireless Telegraphy, Wireless Telegraphist.*

INDEX

(For individual aircraft types, see under AIRCRAFT)

AACHEN (Map p. 318), 142, 662; attacked, 185, 489
 AALBORG (Map p. 278), 17
 ABBEVILLE (Maps pp. 132, 318), 509; attacked, 138, 343, 458, 459, 505, 507, 510
 ABBEVILLE-DRUCAT AIRFIELD (Map p. 504), attacked, 351, 458, 503, 506, 509, 511n
 ABBOTT, LAC, Plate p. 335
 ABBOTT, F-O S. C. B., 457
 ABBREVIATIONS, LIST OF, 698 *et seq*
 ABOUKIR; *see* BRITISH AIR FORCE, STATIONS
 ABRUZZI, Italian merchantman, 261
 ABU SUEIR; *see* BRITISH AIR FORCE, STATIONS
 ACHDAR, JEBEL (Map p. 61), 67, 73, 220
 ACROMA (Maps pp. 203, 212), 102, 200, 209, 216, 234, 235, 240, 241; importance of, to Gazala line, 220
 ADEM, EL (Maps pp. 61, 203), 200 *et seq*, 206, 209, 215 *et seq*, 221, 230, 231, 232, 234, 240 *et seq*; airfield at, 56, 208, 218; importance to Gazala line, 220
 ADEM, SCHIFET EL, 199
 ADEN (Map p. 357), 54, 55, 57, 85, 248, 356, 357, 398
Admiral Scheer, German "pocket-battleship", 43, 296
 ADMIRALTY; *see* BRITISH NAVY
 ADVANCED AIR STRIKING FORCE; *see* BRITISH AIR FORCE
 AEGEAN SEA (Map p. 81), 398, 562, 568, 579
 AFRAG (Map p. 233), 235
 AFRICA (Map p. 270), 78, 392, 575, 635
 AFRICA, EAST (Map p. 357), 54, 55, 71, 356; campaign in, 76, 78
 AFRICA, NORTH, 32, 69n, 76, 225, 231n, 368, 414, 419, 425, 427, 431, 469, 500, 506, 560, 571, 579, 592
 AFRICAN CAMPAIGNS: FIRST BRITISH LIBYAN, Wavell's plans, 59, 62, air force role in, 59, 60, 64, 81; Italian air force in, 60, 148n; action at Sidi Barrani, 62, at Bardia, 63 *et seq*, at Tobruk, 65, 66, at Mechili and Derna, 67; to Benghazi, 67
 —FIRST GERMAN, to Tobruk and Egyptian frontier, 72, 73-4
 —SECOND BRITISH LIBYAN (Crusader), 163-4, 195, 221n, 222; Royal Air Force operations, 106, 195 *et seq*, 200 *et seq*, 206 *et seq*, 211 *et seq*, reinforcements for, 120, 195-6, problems of, 196-7, 223, plans of, 196, Dominions request adequate air support, 196n, effort, 208; British Army plans, 199, Tobruk siege raised, 206, Bardia, Salum, Halfaya and Benghazi captured, 210; Rommel's counter-thrusts, 202 *et seq*, retreats, 206-7; results, 214
 —SECOND GERMAN, operations during, 214 *et seq*; Benghazi recaptured, 215
 —THIRD GERMAN, operations, 231 *et seq*, 240 *et seq*; Royal Air Force neutralises early German success in, 234, shields army in retreat, 241, 244, decimates German fighters, 242-3; British army in, tactics, 235, loss of Bir Hacheim, 236, armoured brigades defeated, 240, Gazala line turned, 240, retreats to Egypt, 241, 242, Tobruk falls, 243, through Mersa Matruh to Alamein, 243, 244; Rommel attacks, 235; German fighters in strength, 242
 —NORTH-WEST AFRICAN, 415, 417; Anglo-American plans for, 379; draws German air reinforcements, 380; role of Royal Air Force, Malta, 381-2; operations, 379-81, 396; role of Coastal Command, 409-10; enemy doubt as to location of landings, 411; French authorities accept Allied terms, 412
 —TRIPOLITANIAN, operations, 383-4, 400-1; Germans heavily mine airfields, 383, leave Buerat el Hsun, 400; German Air Force in, 386; Tripoli falls, 401
 —TUNISIAN, 562; operations, 401 *et seq*, 407 *et seq*; Italo-German forces at Mareth line, 402, 403, at Kasserine, 402, plans, 402n, retreat to Enfidaville line, 406; Mareth line turned, 405; final offensive, 409; Tunis and Bizerta captured, 409

AFRICAN CAMPAIGNS—*continued*
 See also ALAMEIN, BATTLE OF; ALAMEIN LINE; GAZALA LINE
 AFRIKANDA (Map p. 296), 295
 AGAR-HAMILTON, Col J. A. I., 240n
 AGEDABIA (Maps pp. 61, 212), 68, 70, 72, 210, 211, 213 *et seq*, 377; Germans attack, 69; No. 3 Squadron at, 71
 AGEDABIA-ANTELAT ROAD (Map p. 61), 215
 AGHELLA (Maps pp. 61, 212), 68, 69n, 71, 72, 100n, 210, 213, 214, 219, 375, 377, 383
 AGIRA (Map p. 565), 575, 577
 AGNONE AIRFIELD (Map p. 565; Plate p. 590), 578; Nos. 3 and 450 Squadrons to, 575
 AIRBORNE ARMY OPERATIONS, difficulties of, 571; in Sicilian campaign, 573-4
 AIRCRAFT, ferried over Atlantic, 264-5; reasons for varied performance among similar aircraft, 664
 Anson, described, 670. Arado 196, floatplane, described, 687. Arado 234, described, 687. Auster, described, 677. Baltimore, on No. 454 Squadron, 395; described, 681. Battle, failure of, 18, 172, described, 670. Beaufighter (Plate p. 335), on No. 456 Squadron, 145, 338; as night fighter, 145; as torpedo carrier, 276; instrument panel of, Plate p. 430; on No. 455 Squadron, 612, 617; described, 665. Beaufort, failure of, 167, 172n, described, 670. Blenheim, unsuited for daylight, Europe, 9; on No. 459 Squadron, 237. No. 454 Squadron, 360; described, 671. Blohm and Voss 222, flying-boat, described, 690. Bombay, described, 671. Boston, described, 681-2; *see* also Havoc. Cant Z. 501, flying-boat, described, 696. Cant Z. 1007 bis, described, 696. Caproni Ca 311 and 312, described, 696. Catalina, described, 682. Dakota (Plate p. 527), described, 686. Defiant, as night fighter, 145; on No. 456 Squadron, 145; described, 665. Dewoitine D. 520, described, 697. DH-86 (Dragon-Rapide), on No. 1 Air Ambulance Unit, 102; described, 677. Dornier 17, described, 691. Dornier 24, flying-boat, described, 691. Dornier 217J, described, 687. Fiat B.R.20, described, 696. Fiat CR.42, described, 695. Fiat G.50 (Plate p. 417), described, 695. Fieseler 156 (Storch), described, 694. Flying Fortress, described, 682-3. Focke-Wulf 190, superiority of, 143, 144, 345; matched by Typhoon and new Spitfire, 502; described, 687. Focke-Wulf 200, described, 691. Focke-Wulf 200B, described, 694. Fulmar, described, 666. Gauntlet, on No. 3 Squadron, 58; described, 666. Ghibli, described, 696. Gladiator (Plates p. 46), 63, 68, on No. 3 Squadron, 58; described, 666. Glenn Martin (Maryland), described, 683. Hadrian, glider, described, 686. Halifax (Plates pp. 527, 654), average bomb load, 327n; on No. 462 Squadron, 360, No. 460 Squadron, 449, No. 466 Squadron, 592, 636; compared with Lancaster, Plate p. 623; described, 671. Hamilcar, glider, described, 677. Hampden (Plate p. 206), on No. 455 Squadron, 115, 180; estimates of, 172, 275, 611; described, 671. Harvard (Plate p. 111). Havoc, described, 683; *See* also Boston. Heinkel 111 (Plate p. 15); described, 691. Heinkel 115, floatplane, described, 692. Heinkel 177, described, 692. Horsa, glider, described, 677. Hotspur, glider, described, 677. Hudson (Plates pp. 270, 302); on No. 459 Squadron, 237; described, 683. Hurricane (Plates p. 47); on No. 3 Squadron, 67; carried 40-mm cannon, 363n; described, 666-7. Junkers 52, described, 694. Junkers 86, described, 692. Junkers 87 (Stuka), described, 692. Junkers 88, described, 688, 692-3. Junkers 90, described, 694. Junkers 290, described, 693, 694. Kittyhawk (Plates pp. 527, 590), on No. 3 Squadron, 208, 211, on No. 450 Squadron, 218; as fighter-bomber, 222, 244; described, 678-9. Lancaster (Plates pp. 591, 622, 623, 639, 654); design of, 300; unsuitable in daylight, 311; bomb

AIRCRAFT—continued

- load, 327*n*, 598*n*; on No. 460 Squadron, 450, on No. 467 Squadron, 451, compared with Halifax, 592, Plate p. 623; on No. 463 Squadron, 636; described, 672. Liberator (Plate p. 527); described, 684. Lightning, described, 679. Lodestar, on No. 1 Air Ambulance Unit, 198; described, 686. Loire et Olivier Leo. 45, described, 697. Lysander, failure, 57; on No. 3 Squadron, 58; described, 672. Maachi C. 200 and C. 202, described, 695. Magister, described, 677. Manchester, fails, 178; described, 672. Marauder, described, 685. Maryland, *see* Glenn Martin. Master, described, 678. Messerschmitt 109, superiority of series "F" in north Africa, 196*n*; described, 688-9. Messerschmitt 110, described, 689. Messerschmitt 163, described, 690. Messerschmitt 262, described, 690. Messerschmitt 323, described, 695. Meteor, described, 667. Mitchell, described, 685. Morane-Saulnier 406, described, 687. Mosquito (Plate p. 495); on No. 456 Squadron, 340, 515; with 6-pounder gun, 633; described, 667, 672-3. Mustang, described, 679-80, 685. Oxford, described, 678. Piaggio P. 108B, described, 696. Potez 63, described, 697. Savoia-Marchetti SM. 79, described, 697. Spitfire (Plates pp. 142, 335, 495); in photographic reconnaissance, 31; on No. 452 Squadron, 130, 131, 134; on No. 457 Squadron, 131; estimate of, 134, 227-9, 247, 351; development of, 336; on No. 453 Squadron, 337, 349, 507; described, 667-8. Stirling, average bomb load, 327*n*; described, 673-4. Stuka, popular name for Ju-87, derivation of, 69*n*. Sunderland (Plates pp. 14, 174, 430); flying-boat on No. 10 Squadron, 6. No. 461 Squadron, 276; armament of, 286, 440, 441, 619; ocean landings by, 290; lands on airfield, 435; described, 674; "G"-class, civil version of, 156. Swordfish, described, 674. Tempest, described, 669. Thunderbolt, described, 680. Tiger Moth, described, 678. Tomahawk (Plates p. 78); on No. 3 Squadron, 74, 88; described, 680. Typhoon, described, 669. Ventura (Plates pp. 334, 622); on No. 464 Squadron, 452; estimate, 459; described, 686. Walrus, described, 675. Warhawk, described, 680. Warwick, described, 675. Wellington (Plates pp. 207, 527); unsuited in daylight, 9, 10; on No. 458 Squadron, 116, 181, No. 460 Squadron, 116; average bomb load, 327*n*; on No. 466 Squadron, 451; unsuited for German night operations by 1943, 592-3; described, 675-6. Whirlwind, described, 669. Whitley (Plate p. 207); described, 676. —AMERICAN, 678 *et seq*; fighter, 678-80, bomber, 681 *et seq*. —BRITISH, 665 *et seq*; fighter, 665 *et seq*, bomber, 670, *et seq*. —FRENCH, 697. —GERMAN, 687 *et seq*; fighter, 687 *et seq*; bomber, 690 *et seq*. Pilotless, V.1 (Fernzielgerät 76), 599*n*. —ITALIAN, 695-7; fighter, 695; bomber, 696.
- AIRCRAFT CARRIERS, light, value in battle of Atlantic, 147*n*.
- AIRCRAFT RECOGNITION, unsuitable training, in Australia, 553.
- AIRFIELDS, mined by retreating Germans, 383.
- AIR POWER, role in Mediterranean, 261; tactical flexibility, 387-8, 389.
- AIR-SEA RESCUE, 40, 41, 44, 136, 142, 158, 159, 163, 285, 337, 339, 340, 434, 458, 519, 576, 613, 634; full-scale, Bay of Biscay, August 1942, 290-2; by German Air Force, 359; lapel-attached whistle, Plate p. 638.
- AIR-TO-SURFACE VESSEL RADAR; *see* RADAR, BRITISH AKARIT, WADI (Map p. 399), 405, 406.
- Alabastro*, Italian submarine, 295.
- ALAM BAOSHHAZA (Map p. 233), 245.
- ALAMEIN, BATTLE OF, 502; operations during, 368 *et seq*, 375 *et seq*; Desert Air Force breaks up German counter-attacks, 370-1; supply war, 372-3; British break-through, 374-5; air force strategic gains, 377, estimate of, 378-9.
- ALAMEIN, EL (Maps pp. 233, 369), 244 *et seq*, 249, 251 *et seq*, 259, 358, 361, 364, 366, 367, 370, 372, 385, 391, 402, 403.
- ALAMEIN LINE OPERATIONS, 246-7; Desert Air Force at, 245, 246*n*; effect of supply shortage on Italo-German forces, 259 *et seq*.
- ALBANIA (Map p. 81), 78; Italian seizure, 76; bombed by British, 77.
- ALBERTA (Canada), 126.
- ALBERT CANAL (Map p. 318), 18.
- ALDERWERKE TANK FACTORY (Frankfurt-on-Main), 652.
- ALEM EL GZINA (Map p. 399), Nos. 3 and 450 Squadrons to, 384.
- ALENCON (Map p. 504), 517.
- ALEPPO (Map p. 90), 88, 93, 94.
- ALEXANDER, Field Marshal Earl, 256*n*, 388, 567.
- ALEXANDER, Gp Capt J., 425; estimate of, 632; solves maintenance crisis, 633.
- ALEXANDERWERK A. VON DER NAHMER, A. G. FACTORY (Remscheid), Plate p. 463.
- ALEXANDRIA (Maps pp. 58, 233), 30, 52, 55, 79, 84, 86, 104, 156, 162, 164, 221, 227*n*, 236, 237, 239, 391; British battleships immobilised by Italians, 226*n*.
- ALFA-ROMEO AIRCRAFT FACTORY (Milan), 465.
- Alfredo*, Italian merchantman, 398.
- ALFRED TEVES FACTORY (Frankfurt-on-Main), 652.
- ALGERIA (Map p. 412), 385, 398, 406, 411, 412, 462, 500, 563; invasion of, 379, 502.
- ALGIERS (Map p. 412), 294, 379, 381, 387, 409, 411, 412, 413.
- ALIAKMON LINE (Map p. 81), 79.
- ALIMAT, EL (Map p. 233), 244.
- ALLAN, Sqn Ldr J. W., 573.
- ALLEN, F-O J. J., 344, 355.
- ALLIED EXPEDITIONARY AIR FORCE, 636*n*.
- ALLSOP, F-Lt G. C., 622.
- ALPS, THE (Map p. 590), 463, 590, 592.
- Asterifer*, German merchantman, 626.
- ALTEN FIORD (Map p. 296), 297; German fleet in, 296.
- Altmark*-type tanker, 288.
- AMBLETUSE (Map p. 132), 134.
- AMELAND (Map p. 278), 279.
- AMERICA, UNITED STATES OF, 41, 165, 170, 178, 264, 415; aircraft supplies from, 48, 262, 263, 416*n*; in battle of Atlantic, 147, 263, 281, 419; on strategic bombing of Germany, 177*n*; reinforces Middle East, 356; Mediterranean strategy, 386; sends delegates to May 1942 air training conference, 530*n*.
- AMERICAN AIR FORCE, 495, 502; in Mediterranean, 363, 380, 398, 401 *et seq*, 566, 618; in battle of Atlantic, 410, 414, 472; policy, 456, 636; in United Kingdom, 649; operations, 351, 352, 472, 473, 505, 507 *et seq*, 511 *et seq*, 587, 654, 661, need for long-range fighters, 503, bombing tactics, 508, strength, 636.
- AIR FORCES OF: *Eighth*, 476; directives to, 650. *Ninth*, 569-70, 576; in Mediterranean Air Command, 388, 389. Tunisian campaign, 407; against Sicily, 564; *LX Bomber Command*, 563. *Twelfth*, 386, 388, 411*n*; *XII Air Support Command*, 389, 563. *Fifteenth*, 650.
- HALVERSON DETACHMENT, 249, 253; in Malta convoy battles, 238-9, in Mediterranean supply war, 256, 359, 372, 373.
- GROUPS, compared to British, 564*n*. No. 57 (*Pursuit*), 392.
- WINGS, compared to British, 564*n*. No. 51 (*Troop Carrier*), 571.
- SQUADRONS, No. 66 (*Bombardment*), battle of Alamein, 371, 376.
- AMERICAN ARMY, compared with German, 385; build-up in United Kingdom, 420, 472; in Sicilian campaign, 560.
- ARMIES, *Seventh*, 563, in Sicilian campaign, 561, 570, 573, 574, 575.
- CORPS, II, in Tunisian campaign, 404 *et seq*.
- AMERICAN NAVY, 186*n*; in battle of Atlantic, 281, 414; sinks German blockade runner in Pacific, 627.
- AIR FORCE, shortage of aircraft, 262*n*; in battle of Atlantic, 414, 442; *Squadron VP-84*, in battle of Atlantic, 415.
- AMESBURY (England), 125.
- AMIENS (Map p. 132), 139.
- AMIRIYA; *see* BRITISH AIR FORCE, STATIONS.
- Amstelland*, Dutch merchantman, 26.
- AMSTERDAM (Maps pp. 318, 504), attacked, 459, 507, 512.
- ANDERSON, General Sir Kenneth, 412.
- ANDREAS; *see* BRITISH AIR FORCE, STATIONS.
- ANDREW, Maj W. G., 200.
- ANDREWS, W Cdr D. G., 350, 507, 510, 512 *et seq*.
- ANGLE; *see* BRITISH AIR FORCE, STATIONS.
- ANGLESAY, ISLE OF (Maps pp. 132, 342), 145.

Anglesea Rose, British merchantman, 22
 ANGUS (Shire, Scotland), 612
Ankara, German merchantman, 366
Anna Maria, Italian merchantman, 367
Anneliese Essberger, German merchantman, 418
 ANTELAT (Maps pp. 61, 212), 214, 215; No. 3 Squadron to, 213
 ANTI-LEBANON (Map p. 90), 88
 ANTI-PAXOI (Map p. 81), 358
 ANTWERP (Maps pp. 318, 504), attacked, 187, 507, 508
 AOUIA, EL (Map p. 412), 381
Apuanta, Italian merchantman, 367
 AQIR AIRFIELD (Map p. 90), 104; No. 3 Squadron to, 76
Arca, Italian merchantman, 373
 ARCHER, F-O R. B., 167, 267, 273, 279
 ARGOS AIRFIELD (Map p. 81), 85
Argus, British aircraft carrier, 30
 ARGYROKASTRON (Map p. 81), 82, 83
Ark Royal, British aircraft carrier, 226
 ARMSTRONG, Sqn Ldr H. T., 344, 515; estimate of, 354
 ARMY COOPERATION (Diagram p. 194), 215-6, 250, 364; Lysander unsuitable for, 57, 58; success of Hurricane, 58; problems in Syrian campaign, 91, 93-4; training, 100; effect of superior German fighter on efficiency of, Western Desert, 100-1; tactics, development in, Western Desert, 101, of close-support, 370, 387, 405, escorted bombers, 371, compared with German, 378; air support controls, 194-5, 223; close-support: problems, 221, policy and development of fighter-bombers, 222-3, identification of ground forces, 223, late arrival of aircraft, 223, success, 234, losses to ground fire, 240n, fighter-bomber loads, 244, 373, bomb load of Wellington's, 249, No. 239 Wing gives new pattern for, 250, lessons of, in Africa, practised in Great Britain, 506, in Sicilian campaign, 577
 ARMIN, Col-Gen von, 385, 386, 402, 403n, 404, 406, 409
 ARNOLD, Gen of Army H. H., 416n
 ARQUATA SCRIVIA (Map p. 590), 591
 ARQUES (Map p. 132), 142
 ARRAM (Map p. 399), 404
 ARTHUR, W Cdr F. A. (Plate p. 622), 648-9
 ARTHUR, Gp Capt W. S. (Plate p. 46), 63, 74
 ASDIC, 41
 ASSA, EL (Map p. 399), Nos. 3 and 450 Squadrons to, 402
 ASTBURY, F-Lt C. K., 310
 A.T.A.G. FACTORY (Leipzig), 654
Athabasca, Canadian destroyer, 619
 ATHENS (Maps pp. 81, 258), 79, 82, 85
 ATKINSON, F-Lt B., 614
 ATLANTIC, BATTLE OF, 415; and France, effect of fall of France, 37-8, of German bases on Biscay coast, 42, 49, 151; and convoy system, early problems, 39, value of air cover, 147, 148, 621-2, importance of northern convoy routes, 263, system in 1942, 414, battles round convoys, 1943, 421-2, 427, 432 *et seq.*, 437-8, 432-3, 621, 622-3, continuation of, uncertain, 1943, 424, importance, 444; shipping losses, 41, 44, 263-4, 270, 414, 420, 424, 618, 626
 German Air Force, long-range aircraft in, 44, 46, 147, 176, 619; German Navy in, battle cruisers appear, 48, 147, *Bismarck* episode, 155-6; German U-boats in, 48, 628, tactics, 41, 148n, 414, 428, 624n, 629, 633, routes of, from Biscay, 43, disposition of, 47-8, 264n, 292, 409, 411, 434, is main enemy of Great Britain, 147, effect of British Libyan success, 1941, 163-4, effort wanes, 1941, 176, action after entry of America, 263, strength of, 264n, 281, 294, 431, 626, 628, conditions of warfare, 281n, search-receiver success against Allied radar, 292, 421, introduces supply U-boats, 424, 444, morale, 434, 436-7, losses, 444, 633; and Bomber Command, 51, 185, 186 *et seq.*, 311 *et seq.*, 316 *et seq.*, 334, 470 *et seq.*, 476, 593; Italian Navy in, 148n, 423; entry of America, 165, 263; Allied U-boat policy, 281, 424; effect of North-West African campaign on, 414; emphasis placed on, 419-20; 1943, operations, effect on invasion of Europe, 420, 472; effect of winter gales, 420; Germany in, simple plan for 1943, 420, Hitler on

ATLANTIC, BATTLE OF—continued

importance of, 436; British Navy uses support groups, 427; British radar, effect on 1943 operations, 430-2; Fighter Command in, 439, 505-6, 519, 520-2; Allied forces fulfil tasks allotted, 627-8.
 Operations of Coastal Command in, 25 *et seq.*, 38 *et seq.*, 44 *et seq.*, 150 *et seq.*, 156 *et seq.*, 162 *et seq.*, 264-6, 271 *et seq.*, 276 *et seq.*, 282 *et seq.*, 288 *et seq.*, 292 *et seq.*, 414 *et seq.*, 420 *et seq.*, 426 *et seq.*, 432 *et seq.*, 438 *et seq.*, 616, 617 *et seq.*, 623 *et seq.*, 633-4, deployment, 38, 264, 437, 618, 621, problems of, 39-40, 147-8, directives to, 51, 147, effect of bad weather on, 147, patrols of, 148, 149, 416n, 417, 422-3, 429-30, U-boat attacks, 149n
 ATLANTIC OCEAN, 6, 12, 21, 41, 48, 117, 165, 264, 269, 273, 411, 427, 432, 436, 437, 472, 617, 629
 AUCHINLECK, Field Marshal Sir Claude, 218, 220n, 256n; as Commander-in-Chief, Middle East, 193, in Second British Libyan campaign, 205, 206, views on strategy, 232n, in Third German African campaign, 232, 235, at Alamein line, 246, 253, 254
Auckland Star, British merchantman, 29
 AUGSBURG (Map p. 318), 650; attacked, 334, 347, 461, 597, 661
 AUGUSTA (Map p. 565), 562, 571, 572
Aurora, British cruiser, 12
 AUSTIN, F-Lt J. S., 265, 279
 AUSTIN, F-O W. (Plate p. 207), 615
 AUSTRALIA, 114, 128, 262, 344, 349, 394, 527, 534, 546, 552, 617; reaction to Greece campaign, 86; danger to, 165; 1942, aircraft requirements, 262-3; and Royal Air Force, requests supply of experienced Australian aircrew, 263, 556; Ministerial enquiries on Australian air force in Middle East, 390; 73-squadron plan approved, 534; cost of operating permanent squadrons overseas, 534
 —IN EMPIRE AIR TRAINING SCHEME, employment of Australians in Royal Air Force squadrons, 4; Australian uniform retained, 4; aircrew sent to Middle East, 102-3, to Rhodesia, 107; aircrew training in Australia, 107, estimate of, 553-4; plans for Australian depot in Great Britain, 108, 109; administration, discussions with Great Britain and New Zealand, 110; April 1941 agreement approved, 110-1; fails to prevent dispatch of ground crews, 1941, 114, policy on formation of squadrons, 116, 119, 535, 544-5; commissioning policy approved, 127-8; drafts overseas cease, 1942, 303, 535, effect on Australian aspirations, 451; on commands of Royal Air Force stations, 425; refuses additional ground crews for Australian squadrons, 453 *et seq.*, 556; wants information from Overseas Headquarters, 525; delegation to May 1942 conference, 530, 531, financial obligations, 532, 533n; signs June 1942 agreement, 533; position of, compared Canada, 534; financial provisions of March 1943 agreement, 543-4; repatriation policy mishandled, 557-8
 —NATIONAL ASPIRATIONS FOR AIR EFFORT OVERSEAS, preference for national formations, 1, 523; reasons for failure to gain 4, 128, 526, 535, 536, 548-9, 551, 553-4, 555, 556-7, 636, insufficient Australians for needs of, 115, 303, 338-9, 349, 360, 451-2, 453-4, 515, 540, effect of mistaken reliance on Royal Air Force facilities, 128, dispersal of Australians, 181-2, 301-2, 447-8, 536, 539, Bomber Command and all-Australian crews, 302-3, 304-6, 547 *et seq.*, 636, withdrawal of two fighter squadrons, 337, effect of aircrew shortages in Middle East, 398, 563, effect of home-defence plans on, 453 *et seq.*, 524; plans for Australian expeditionary force, 4; formation of Australian units in air training agreement, 4, 450-1; formation of an overseas headquarters, 118-9, difficulties of, 524-5, 538; No. 455 Squadron, 300-1, 616, 617; steps necessary to give effect to, 303-4, 478-9, 524, 547; attitude of non-Australians in No. 462 Squadron to, 408n, 569-70; Australian commands Royal Air Force station, 425; Williams' plan for Bomber Command, 452 *et seq.*, lapses, 478; efficiency of national and multi-national forces, 523; Australian air force efforts towards, 524, 529-30; importance of March 1943 training agreement, 543 *et seq.*, reasons for failure, 546 *et seq.*
 AUSTRALIAN AIR FORCE, expeditionary force planned, 1, cancelled, 3; trained pilots for Royal Air Force pre-war, 1; obsolescent aircraft of, 2; and the

AUSTRALIAN AIR FORCE—*continued*

Empire Air Training Scheme, 4, 108, 112*n*, 123, 531, 534-5, 546-7, policy: enlistment in United Kingdom, 8, promotion, 126-7, 537-8, 543-4, segregation, 276, 536-7, clothing, 527-8, 544, operational tour, 538, concentration, 544-5, 546 *et seq*, on liaison officers and pay, 544, repatriation, 544, 555 *et seq*, courts martial, 545, ground crews: surplus in Australia, 113, 114, strength overseas, 113, 452-3, position in United Kingdom, 450-1, dispersal of, 536*n*, morale of, 557, *Article XV* squadrons: plans, 110, 503*n*, 545, formation of, 96, 114, 115, 116, 130, 131, 178 *et seq*, 237, 276, 337, 360, 450-1, 452, 636, disposition of, 1943, 535, training: loss of skill through long sea voyage, 117-8, weakness of, in Australian schools, 553-4; cessation of overseas drafts, 303, discipline, British fears unrealised, 98, of gunners, 491, provost service overseas, 538; Australians with Royal Air Force, in Middle East: 102, 247 *et seq*, 356-7, 358, 384, 391, 398, 547, 569, bombers, 218-9, 237, 358 *et seq*, 360-1, with No. 239 Wing, 222, with Desert Air Force, 404*n*, 564; at No. 3 Personnel Reception Centre: 112, 124-5, 529, in Britain, 115, 125, 478, 529-30, 539, 540, 541, 546, 551, 552, 554-5, in Coastal Command: 151, 167, 264-5, 287, 288-9, 294, 297, 444-5, 547, at Malta: 226 *et seq*, 362, 381, 397, in Fighter Command: 337, 350-1, 354, 503, 515, 547, in Eastern Air Command: 380-1, 413, in Flying Training Command: 540 *et seq*, problems of, 541-2, in India: 547; Squadrons in Bomber Command, 185, 479, 593*n*, 636; Australians with South African Air Force, 248; Australians with Mediterranean Air Command, 389-90, in North-West African Strategic Air Force, 562, 567, in North-West African Coastal Air Force, 563, in North-West African Tactical Air Force, 563-4; appointment of chaplains, 390, 538; poor administration in Middle East, 390; pay system and rates of pay overseas, 537; problem of under-sized pilots, 554-5; purchases Sunderland, 629 —AIR BOARD, 250, 394, 523, 534, 538; and United Kingdom reception centre, 4, 108, 529*n*; and No. 10 Squadron, 7, 16; and No. 3 Squadron, 70-1, 97-9; and Empire Air Training Scheme, 71, 99*n*, 107, 109, 127, 128, 451, 536, 556 *et seq*, segregation policy, 96, 122*n*, 286, 363, on *Article XV* squadrons, 96, 113, 114, 120-3, 179, 453, 535; disadvantage in remoteness of, 99*n*; and Middle East liaison problems, 112-3, 120, 123, 128, 390; and changing crew categories in Bomber Command, 303 *et seq*; and Overseas Headquarters, 528, 536 —AIR FORCE HEADQUARTERS, 123, 535 —OVERSEAS HEADQUARTERS, 152, 303, 304, 305, 363, 393, 452, 524, 536, 537, 542, 550, 556, 558, 570; formed, 118-9; role, 119, 128, 524 *et seq*; and Middle East administration problems, 120 *et seq*, 249*n*, 390; and Empire Air Training Scheme, 127, 300-1, 538, 545, 546-7; estimate of, 555. *Organisation and Staff Duties Branch*, 525 —AMBULANCE UNIT, No. 1 (Plate p. 399), sent to Middle East, 102; bases, movement to, 1941, Heliopolis, Gaza, 102, 1942, Gambut, Burg el Arab, Wadi Natrun, Heliopolis, 248; aircraft, DH-86, 102, Lodestar, 102, 198; ground staff for, 114*n*; in Second British Libyan campaign, 195, 198; in Third German African campaign, 240; under Mediterranean Air Command, 390; annual cost, 534 —DEPOT, No. 2 Embarkation, 491*n* —HISTORICAL SECTION, 664 —LIAISON OFFICES, London, 4*n*, 102, 527; Cairo, 71, 113, 120, 250, 390, 558 —PERSONNEL DISPATCH AND RECEPTION CENTRE, No. 11, 530, 551 —POSTAL UNIT, at Bournemouth, proposed, 125 —STATIONS, Laverton, 102; Williamtown, 179, 180 —SQUADRONS, No. 1, 534, No. 3 (Plates pp. 14, 46, 47, 78, 430, 590), 76, 96, 97, 107, 113, 119, 194, 221*n*, 452, 579; arrives Middle East, 57; operational control of, 57; operations in Western Desert, 1940, 57, 58-9; aircraft types: Lysander, Gladiator, Gauntlet, 58, shortage of Gladiators, 63, Hurricane, 67, Gladiator compared Italian Fiat, 68, Tomahawk, 74, 88, Kittyhawk 208; bases, moves to: 1940, Ismailia, Helwan, Qasaba and Gerawla, 58, Sidi Barrani and LGE-74, 62,

AUSTRALIAN AIR FORCE—*continued*

Bir Malla, 63, Salum, 64, 1941, Gambut, 66, Tmimi and Martuba, 67, Benina, 69, Got es Sultan and Maraua, 72, Martuba, Gazala, Sidi Mahmud, LGE-79, Mersa Matruh and Sidi Haneish, 73, Aboukir, 74, Aqir, 76, Cyprus detachment, 88*n*, Rosh Pinna, 93, Rayak, Amiriya and Sidi Haneish, 95, Sidi Barrani, 197, Maddalena, 198, El Adem, 208, Mechili and Msus, 210, 1942, Antelat, 213, Msus, 214, Mechili, 215, Gambut, 215, 225, Sidi Haneish, 225, 243, Sidi Azeiz, 242, LG-75, 243, Daba and Amiriya, 244, Daba, Sidi Haneish, Misheifa, Sidi Azeiz, Gambut, Gazala and Martuba, 375, Belaudah and Marble Arch, 383, Alem el Gzina, 384, 1943, Tamet and Hamraiet, 400, Castel Benito, 401, El Assa, 402, Oglet Nefatia, 403, Medenine and El Hamma, 405, El Djem and Kairouan, 406, Zuara, 567, Malta, 573, Pachino, 574, Agnone, 575; basis of organisation, 58; role, 58; in First British Libyan campaign, 60, operations, 60, 62 *et seq*, effort, 62, reverse at Salum, 63, over Bardia, 65; superfluous airmen detached, 66; estimates of, 68, 75, 247, 576; in First German African campaign, operations, 68 *et seq*, deploys against German Air Force, 71, planned role, 72, retreat, 72-3, 74; establishment problems, 70-1, 88, 99*n*, 103, 112, 114*n*, 363; as regular unit, policy on, 71; effort during first tour in Western Desert, 74-5; in Syrian campaign, 88, 89, 91 *et seq*, attached to Australian Corps, 92, role, 95; Western Desert, September-October 1941, 106; in Second British Libyan campaign, 195*n*, 196, 197 *et seq*, 202 *et seq*, 208, 210 *et seq*, operational effort, 197, 208, 210-1; in Second German African campaign, 214 *et seq*, perfect interception, 216-7; on Gazala line, 221 *et seq*, in fighter-bomber role, 222, operational effort, 223; in Third German African campaign, 230 *et seq*, 240 *et seq*, operational effort, 231, 234*n*, 235, 236, 244, maintenance problems, 240, maximum effort at Gambut, 241; at Alamein line, 246-7, 253 *et seq*, 256-7, 364-5, operational effort, 247, 254, 256, 365; proposal on 3-squadron Australian fighter wing, 250; pilot casualties, May-July 1942, 254; in battle of Alamein, 369 *et seq*, 375 *et seq*, operational effort, 378; in Tripolitanian campaign, 383-4, 400-1; under Mediterranean Air Command, 390; in Tunisian campaign, 401 *et seq*, 406 *et seq*, operational effort, 407; in Sicilian campaign, 567, 573-4, 575 *et seq*; annual cost of, 534; end of segregation, 537, No. 8, 534, No. 10 (Plates pp. 14, 15, 46, 271, 302, 430, 622), 8, 12, 68, 71, 107, 108, 119, 120, 152, 450, 452; retained in United Kingdom, 1939, 2, 6; complement for, leaves Australia, 2; pilots arrive, 6; aircraft for, Sunderlands, 6, 41, modifications by, 153, 441, 619, 624, "G"-class flying-boats attached, 156, prepares Sunderlands for Pacific war, 629; early operations in No. 15 Group, 6-7, 12 *et seq*; bases, moves to, 1939, Pembroke Dock, 6, 1940, Mount Batten, 14, Oban detachment, 38, 49, Pembroke Dock, 44, Mount Batten, 45, 1941, Pembroke Dock, 49, 153, Mount Batten, 147, 1942, Mount Batten, 264, Felixstowe detachment, 268; detachments to Mediterranean, 6, 7, 29-30, 43, 46-7, 156, 159, 162, 164, 271, 277, 284-5; main party arrives, 7; compared with Royal Air Force squadrons, 14; reinforcements, 15, 47; aircrew drawn from ground staff, 15; establishment problems, 16, 22; changes operating procedure, 16; in battle for France, 20 *et seq*; aerial depth-charges introduced, 21; effect of occupation of France, 22, 37; first attack on U-boat, 22-3; in Battle of Britain, 23 *et seq*, 38-9, 40, 1, operational effort, 39, 40; first U-boat destroyed, 25-6; German air raids, 26, 43, 44, 49, 158; receives Air-to-Surface Vessel radar, 38; operations from Oban, 38-9; in battle of Atlantic, 1940, 41 *et seq*, operational effort, 45; winter flying problems, 44, 264; uselessness of night patrols, 45; in battle of Atlantic, 1941, 46, 47 *et seq*; need for Northern Ireland base, 46; released from operations, early 1941, 46; comes under No. 19 Group, 46; ground staff, estimate, 47; maintenance standards, 47, 429, 632; repatriation, 152; Bay of Biscay operations, 1941, 152, 154 *et seq*, 160 *et seq*, operational effort, 158, 159, 162, 163, importance, 166; contaminated petrol, 153; watch on Brest, 154;

AUSTRALIAN AIR FORCE—*continued*

attitude to Japanese war, 165; proposal to recall to Australia, 262; Bay of Biscay operations, 1942, 264, 271 *et seq.*, 276 *et seq.*, 283 *et seq.*, 289 *et seq.*, 417 *et seq.*, operational effort, 264, 272, 286, 417; training, 271, 624; Empire scheme aircrew with, 271, 537; problem of flight engineers, 304; Bay of Biscay operations, 1943, 420 *et seq.*, 427 *et seq.*, 434 *et seq.*, 440 *et seq.*, 618 *et seq.*, 624-5, 626-7, operational effort, 438, 441; provides leaders for No. 461 Squadron, 421; supplies staff for Overseas Headquarters, 524; annual cost of, 534; Bay of Biscay operations, 1944, 627 *et seq.*, 634, operational effort, 633. No. 21, 534. No. 450 (Plates pp. 527, 590), 98, 115*n*, 123, 364, 384, 557, 569, 579; as No. 260/450 Squadron in Syrian campaign, 92, 94, 95; bases, movement to, 1941, Haifa, 94, Burg el Arab and Abu Suier, 218, 1942, Gambut, 218, El Adem detachment, 218, Sidi Azeiz and LG-75, 242, Sidi Haneish, 243, Daba and Amiriya, 244, Daba, Sidi Haneish, Mischeifa, Sidi Azeiz, Gambut, Gazala and Martuba, 375, Belaudah and Marble Arch, 383, Alem el Gzina and Ghel, 384, 1943, Tamet and Hamraiet, 400, Castel Benito, 401, El Assa, 402, Oglet Nefatia, 403, Medenine and El Hamma, 405, El Djem and Kairouan, 406, Zuara, 567, Malta, 573, Pachino, 574, Agnone, 575; early misfortunes, 96; training, 96; lacks experienced pilots, 97; to Middle East, 113; ground crews for, 114*n*; correct title disputed, 121-3; compared No. 455 Squadron, 180; aircraft, Kittyhawk, 218; in Second German African campaign, 218-9; with No. 239 Wing, 221*n*; at Gazala line, 222 *et seq.*, in fighter-bomber role, 222, operational effort, 223, 224; pilot casualties, 224, 254; estimates of, 225, 247, 576; in Third German African campaign, 230 *et seq.*, 240 *et seq.*, operational effort, 237, 234*n*, 235, 236, maintenance problems, 240, maximum effort at Gambut, 241; importance of Gambut, 241; at Alamein line, 246-7, 253 *et seq.*, 256-7, 364-5, effort, 247, 254, 256, 365; reorganised, 363; in battle of Alamein, 369 *et seq.*, 375 *et seq.*, operational effort, 378; in Tripolitanian campaign, 383-4, 400-1; under Mediterranean Air Command, 390; in Tunisian campaign, 401 *et seq.*, 406, *et seq.*, operational effort, 407; in Sicilian campaign, 567, 573-4, 575 *et seq.*, No. 451, 98, 115*n*, 123, 195, 218, 384, to Middle East for army-cooperation, 96, 113; early misfortunes, 96, establishment problems, 97, 100, 197-8; aircraft, Hurricane, 99; bases, movement to, 1941, Qasaba, 99, LG-75, 197, LG-132, 199, Sidi Azeiz, 202, Tobruk, 205, Maddalena and Sidi Azeiz, 209, 1942, Rayak, 210, Haifa, 250, Cyprus detachment, 250, 1943, Mersa Matruih and Iduku, 391; ground crews for, 114*n*; title disputed, 121-3; Western Desert, 1941, operations, 101-2, 106, operational effort, 101, Tobruk reconnaissance flights, 101; compared with No. 455 Squadron, 180; in Second British Libyan campaign, 195*n*, 196, 197 *et seq.*, 201 *et seq.*, 206 *et seq.*, operational effort, 197, 209, 210, reinforced by No. 238 Squadron, R.A.F., 199*n*, capture of airmen, 205, estimate, 209; withdrawn from Western Desert, 210; trains with 2 New Zealand Division, 250; effect of over-supply of army-cooperation squadrons, 250; morale, 250, 391 *et seq.*; in proposed 3-squadron Australian wing, 250; under Mediterranean Air Command, 390; role, 1942, 392, 393, 1943, 569; applies for return to Australia, 393; dispute with Royal Air Force, Middle East on administration problems, 394; operations in eastern Mediterranean, during Sicilian campaign, 569, 579. No. 452 (Plates pp. 142, 143, 526), 131, 180, 229, 337, 350, 393, 450; formed in Fighter Command, 114, 130; ground crews sent, 114, 137; aircraft, Spitfire, 130, 134; role, 130, 139; bases, movement to, 1941, Kirton-in-Lindsey, 130, Kenley, 133, Redhill, 142, Andreas, 345; British provide leaders, 130; operations, 1941, 130-1, 133 *et seq.*, 137 *et seq.*, 142 *et seq.*, effort, 144; estimate of, 136-7, 139; victories claimed, 137*n*, 139; influence of Bungey and Finucane, 139-40; Finucane on tactics, 140; first contact with FW-190, 143; attitude to Japanese war, 144; pilots for, compared No. 456 Squadron, 145; Brest squadron operations, 268; operations, 1942, 341 *et seq.*, pilots withdrawn for Australia, 344; leaves No. 11

AUSTRALIAN AIR FORCE—*continued*

Group, 344-5; to Australia, 349, 535; "A" Flight, 139, "B" Flight, 138, 139. No. 453 (Plate p. 495), 515, 557; in Malaya, 114, 115, 139*n*, 535; re-formed in Fighter Command, 337; bases, movement to, 1942, Drem, 337, 349, Hornchurch, 349, Southend detachment, 352, 1943, Hornchurch, 507, Ibsley, Predannack, 511, Bradwell Bay, Coltishall, Tangmere, Martlesham, Manston, Portreath, 512, Predannack, Perranporth, Kenley, 513, Tangmere, Skeabrae, 514; aircraft, Spitfire, 337, 349, 507; operations, 1942, 349 *et seq.*, operational effort, 352, 353; tactical situation, 1942, 349-50; role, 351; at air firing course, 353; operations, 1943, 458, 503, 505 *et seq.*, 510 *et seq.*, operational effort, 503, 505, 507, 514; tactical flexibility of, 512. No. 454 (Plates pp. 398, 399), 384, 557; early misfortunes, 114, 115; formed in Middle East, 360; role, 360; aircraft, Blenheim, 360, Baltimore, 395; under Mediterranean Air Command, 390; bases, movement to, 1943, Amiriya, Gambut, 395; morale, 395; living conditions at Gambut, 395-6; operations, 1943, 568, 579. No. 455 (Plate p. 207), 300, 306, 310, 450, 452, 492; ground crews for, 114, 179-80; formed in Bomber Command, 115, 179-80; shortage of Australian crews, 115, 116, 301; aircraft, Hampden, 115, 179-80, Beaufighter, 612, 617; bases, movement to, 1941, Swinderby, 178, quarters at Coddington, 180, Skellingthorpe, 180, 1942, in Russia, 275, 417, Wigsley, 300, Leuchars, 301, Sumburgh detachment, 417, 1943 detachments to, Sumburgh, 431, Wick, 612, 614, Benbecula, Iceland, Tain, 616; operations against Brest squadron, 268; transferred to Coastal Command, role in, 275, 301; torpedo training, 289; in Russia, 1942, 295 *et seq.*; operations, anti-submarine, 1942, 417; proposals to disband, 418, 612; operations off Norway, 1943, 420, 612 *et seq.*, effort, 612; future of, 455; shortage of crews, 615, 616. No. 456 (Plates pp. 335, 495), 304; formed in Fighter Command, 116, 145; Australians with, 116, 145; estimate of, 146; supply of aircrews, 145; aircraft, Defiant, 145, Beaufighter, 338, 340, Mosquito, 340, 515; bases, movement to, 1941, Valley, 145, 1943, Colerne, Middle Wallop, 515, Castle Camps detachment, 518, Predannack detachment, 519; in operations, 1941, 146, 1942, 337 *et seq.*; role, unpleasant aspect, 338; operations, 1943, 516 *et seq.*, No. 457 (Plate p. 335), 146, 393, 450; formed, 114, 131; bases, movement to, Baginton, Jurbj, Andreas, 131, Redhill, 340, 345, Kirton-in-Lindsey, 349; aircraft, Spitfire, 131, role, 131; trains British and Canadian pilots, 131; supply of pilots, 145; withdrawn to Australia, 337, 349, 535; operations, 1942, 345 *et seq.*, operational effort, 348. No. 458, 250, 301, 384, 450, 452, 563; Wellington, 116, 181; bases, movement to, 1941, Holme-on-Spalding Moor, 180, 1942, re-formed Shallufa, 360, Gambut detachment, 382, Amiriya, 395, 1943, Malta detachment, 396, Algeria, 563; compared No. 455 Squadron, 181; transfers men to No. 460 Squadron, 181; operations in Bomber Command, 1941-42, 184 *et seq.*; transferred to Middle East, 185, 249-50; ground crews split between American and British air forces, 249; difficulties in ferrying aircraft to Middle East, 249; destined for Burma, 249*n*; operations, eastern Mediterranean, 1942, 382, 1943, 395, central Mediterranean, 1943, 396 *et seq.*, 407, 568, 579; under Mediterranean Air Command, 390; Australians with, 1943, 563. No. 459, 273, 360, 384; early difficulties, 116; formed in Middle East, 237; aircraft, Hudson, Blenheim, 237; bases, movement to, 1942, Burg el Arab, LG-40, 237, Abu Sueir, Iduku, 255, Aden detachment, 356, St Jean, 357, Gianiclis, Gambut, 382, 1943, detachments, Nicosia, Berca, St. Jean, Lydda, 568; in operations, 1942, 237, Malta convoy, 239; role, 255; in supply war, 1942, 255-6, 359, operational effort, 255; living conditions Aden area, 356-7; operations, Aden area, 1942, 357-8; operations, eastern Mediterranean, 1942, 382-3, operational effort, 382; under Mediterranean Air Command, 390; morale, 395; living conditions at Gambut, 395-6; operations, 1943, 568-9, 579. No. 460 (Plates pp. 591, 622, 623, 639), 300, 305, 306, 309, 451, 452, 460, 479; formed in Bomber Command, 116, 181; aircraft, Wellington, 116,

AUSTRALIAN AIR FORCE—*continued*

Halifax, 449, Lancaster, 450; bases, movement to, 1941, Molesworth, 181, 1942, Brighton, 181, 301, 1943, Binbrook, 479; operations, 1942, 306 *et seq.*, 312 *et seq.*, 320 *et seq.*, 325 *et seq.*, 330 *et seq.*, 448, operational effort, 307-8, 312, 314, 315, 317, 321, 323, 325, 326, 328 *et seq.*, 333; Australian crews, problems, 303; operations, 1943, 451, 463 *et seq.*, 468 *et seq.*, 480 *et seq.*, 486 *et seq.*, 490 *et seq.*, 496 *et seq.*, 585 *et seq.*, 590 *et seq.*, 596 *et seq.*, 602 *et seq.*, 636 *et seq.*, operational effort, 451, 462, 468 *et seq.*, 473, 482 *et seq.*, 487 *et seq.*, 492, 496 *et seq.*, 500-1, 586, 589, 594, 596, 597, 601, 603, 605, 606, 637, 651, 653; heavy losses, 602, 639; operations, 1944, 642 *et seq.*, 651 *et seq.*, 657 *et seq.*, operational effort, 643, 651, 655, 658 *et seq.*; record effort against Berlin, 648. No. 461 (Plates pp. 430-1), 305, 557; formed in Coastal Command, 276; aircraft, Sunderland, 276, modifications to, 440, 619; bases, movement to, 1942, Pembroke Dock, 276, Poole, 293, 1943, Hamworthy, Pembroke Dock, 429; tactical situation, 1942, 286; operations, Bay of Biscay, 1942, 286 *et seq.*, 290 *et seq.*, 417-8, operational effort, 286, 417; attacks British submarine, 286; on transport duties for North-West African campaign, 411; maintenance problems, 429, 632; operations, Bay of Biscay, 1943, 419 *et seq.*, 425 *et seq.*, 434 *et seq.*, 440 *et seq.*, 618 *et seq.*, 624-5, 626 *et seq.*, 634, operational effort, 438, 441; training drive, 624. No. 462, 384, 454, 612; projected, 305; formed in Middle East, 360; aircraft, Halifax, 360; bases, movement to, Fayid, 360, Misurata, 402, Gardabia, 408; under Mediterranean Air Command, 390; attitude of non-Australians in, 408n; future of, discussed, 455; at Sicily landings, 563. No. 463 (Plate p. 638), formation deferred, 305, 454; formed in Bomber Command, 636; aircraft, Lancaster, 636; based at Waddington, 636; operations, 1943, 639 *et seq.*, effort, 637, 651, 653, 1944, 642 *et seq.*, 651 *et seq.*, 657 *et seq.*, operational effort 643, 648n, 651, 653, 655, 658 *et seq.* No. 464 (Plate p. 622), 454, 491, 612; formed in Bomber Command, 452; aircraft, Ventura, 452; lacks Australian crews, 452; bases, movement to, 1942, Feltwell, 452, 1943, Methwold, 459; future discussed, 455; in Eindhoven attack, 456-7; operations, 1943, 458-9, 506; transferred to Fighter Command, 459-60. No. 465, unrealised plans, 454, 503n. No. 466 (Plates pp. 623, 639), 479; formed in Bomber Command, 450-1; based at Driffield, 451; aircraft, Wellington, 451, Halifax, 592, 636; operations, 1943, 451, 467, 471 *et seq.*, 480 *et seq.*, 486 *et seq.*, 496-7, 585 *et seq.*, 592, 600, 603, 641, operational effort, 451, 468, 470, 473, 482 *et seq.*, 488 *et seq.*, 492, 496, 500-1, 586, 603, 637, 651; Australian representation increases, 478; estimate of, 479; operations, 1944, 644 *et seq.*, 651 *et seq.*, 657 *et seq.*, operational effort, 643, 648n, 651, 653, 655, 658 *et seq.* No. 467 (Plates pp. 622, 638), 479; projected, 305; formed in Bomber Command, 450-1; based at Bottesford, 451; aircraft, Lancaster, 451; operations, 1943, 451, 465 *et seq.*, 471 *et seq.*, 480 *et seq.*, 486 *et seq.*, 495 *et seq.*, 585 *et seq.*, 591 *et seq.*, 597 *et seq.*, 603 *et seq.*, 636 *et seq.*, operational effort, 451, 462, 468 *et seq.*, 473, 482 *et seq.*, 487 *et seq.*, 492, 496 *et seq.*, 500-1, 586, 589, 594, 596, 597, 601, 603, 605, 606, 637, 651, 653; Australian representation, 478; estimate of, 479; skill of ground staff, 598; operations, 1944, 642 *et seq.*, 651 *et seq.*, 657 *et seq.*, operational effort, 643, 648n, 651, 653, 655, 658 *et seq.*

AUSTRALIAN ARMY, 57n

AUSTRALIAN COMFORTS FUND, 125, 538, 541n

AUSTRALIAN IMPERIAL FORCE: First, 4n. Second, 57, 102

—I AUST CORPS, 102; No. 3 Squadron with, 57; in Syrian campaign, 92; Air Intelligence Liaison Section, 100n

—DIVISIONS: 6th, 57, 100n; in First British Libyan campaign, 63-4, 65, 68; in Syrian campaign, 93, 7th, in Syrian campaign, 87, 88, 91, 93, 95, 9th, in First German African campaign, 72, 73; in Tobruk siege, 100; in Alamein line, 246, 253; battle of Alamein, 370, 371, 373

—BRIGADES: 19th, 100n; in First Libyan campaign, 65, 67, 21st, in Syrian campaign, 89

AUSTRALIAN IMPERIAL FORCE—*continued*

—ARTILLERY REGIMENTS: 2/3rd Anti-Tank, at Mechili, 74n, 2/4th Field, in Syrian campaign, 92n
—BATTALIONS: 2/11th, 100n, 2/14th, in Syrian campaign, 92n

—MEDICAL, 2/1st General Hospital, 102

—AIR SUPPORT CONTROLS: No. 1, 195, No. 2, 205n

—AIR INTELLIGENCE LIAISON SECTION, No. 200, 195

AUSTRALIAN RULES FOOTBALL, Plate p. 398

AUSTRALIAN WAR MEMORIAL, 219n

AVRANCHES (Map p. 504), 517

AXEL (Map p. 504), 510

AZORES (Map p. 270), 434, 436, 624n, 627; Portugal allows Allies to use airfield on, 621

BARDOWN FARM: *see* BRITISH AIR FORCE, STATIONS

BAB EL QATTARA (Maps pp. 233, 369), 246, 253, 261

BAD CANNSTADT (Map p. 318), 659

BADER, Gp Capt D. R. S., 141

BADHAM, F-Lt C., 292

BADOGLIO, Marshal Pietro, 580

BAEDEKER RAIDS, 339n

BAGINTON; *see* BRITISH AIR FORCE, STATIONS

BAGUSH; *see* MAATEN BAGUSH

BAILEY, W Cdr R. E., 451, 452, 479, 587, 593; estimate of, 501

BAIRD, Sqn Ldr K. D., Plate p. 622

BAIRD, Sqn Ldr R. D. J., 441

BALDWIN, F-Sgt, Plate p. 143

BALFOUR, Rt Hon Lord, 110

BALFOUR, P-O D. C., 655

BALKAN Entente, British hopes for, 76-7

BALKAN STATES, 54, 69, 76, 86, 88, 103, 129, 577;

German activity in, 1940, 80; reinforcements for

German African army from, 1942, 259n

BALLYKELLY; *see* BRITISH AIR FORCE, STATIONS

BALMER, Gp Capt J. R., 649

BALTIC SEA (Map p. 318), 190, 279, 313, 417, 499,

505, 506, 613, 616, 646, 647; German ports on,

attacked, 306; training area for U-boats, 471n;

German shipping losses in, 611n

Baltistan, British merchantman 48

BANDAR KASSIM AIRFIELD (Map p. 357), 356

Barbaro, Italian merchantman, 367

BARBARETTI, Marshal, 259, 368

BARBER, W Cdr M. C. H., 372, 375

BARCE (Map p. 61), 68, 72, 376

BARCE AIRFIELD (Map p. 61), 231

BARCE PASS, 73

BARCLAY, Sqn Ldr K. M. 505, 508, *et seq.*

BARDIA (Maps pp. 61, 203, 212), 56, 62, 64, 101, 105,

106, 196, 200, 205, 207, 209, 210; Italians retreat to,

63; battle of, 63-4, air support during, 65

BARDIA-CAPUZZO ROAD (Map p. 61), 74

Barham, British battleship, 226

BARI AIRFIELD (Map p. 565), 407

BARMBECK (Hamburg suburb), 588

BARMEN (Map p. 480), 488-9

BARNARD, F-O D. T., 568

BARNES, F-Lt J. W., 103

BARR, W Cdr A. W., 211, 213, 223, 231, 235, 241, 244

BARRETT, Sgt S. W., Plate p. 639

BARRIEN, F-Lt J., 352-3

BARROW DEEP (Map p. 504), 506

BARSON, Sqn Ldr N., 288, 425

BARTLE, Sqn Ldr J. P., 201, 207, 216, 217n, 222, 405,

567

BARTON, F-Lt G., Plate p. 430

BASSETT, Sgt K. D., Plate p. 143

BASSINGBOURN; *see* BRITISH AIR FORCE, STATIONS

BATH (Map p. 342), 339n

BATH HILL COURT (Bournemouth), 124

"BATTLEAXE" OPERATION (Western Desert, 1941),

87, 193n; air tactics in, 104

BAYEAUX (Map p. 504), 517

BAYONNE (Map p. 13), 285

BEACHY HEAD (Maps pp. 132, 342), 137, 341, 343

BEAMISH, Gp Capt F. V., 268n, 343

BEAMISH, AVM G. R., 241

BEAR ISLAND (Map p. 296), 296

BEASLEY, Rt Hon J. A., 116

BEATON, Sqn Ldr D. C., 356

BEATTIE, W-O D. W., 332

BEAUVAIS AIRFIELD (Map p. 504), 514

BEDA FOMM (Maps pp. 61, 212), 215; battle at, 68

BETTON, Sqn Ldr K. C., 418, 421

BEIRUT (Maps pp. 90, 258), 88, 89, 91, 92, 93, 95

- BEJA (Map p. 399), 402
 BELAUDAH AIRFIELD (Map p. 399), Nos. 3 and 450 Squadrons to, 383
 BELGIAN RESISTANCE MOVEMENT, assists Austrians, 328
 BELGIUM (Maps pp. 132, 318, 342), 77, 141, 172, 380, 505, 662; Germans invade, 18; sends delegates to 1942 air training conference, 530*n*; Bomber Command over, plans, 51, 310, its attacks, 18-19, 36, 51, 660; Fighter Command over, 1941, 131, 133, 137, 143, 1942, 242, 352, 1943, 505, 507, 508, 509, 510, 512, 518
Belgrano, German merchantman, 418
 BELHAMED (Maps pp. 212, 233), 199, 204, 205, 206, 242
Belinder, German tanker, 166
 BELL, F-Lt J. N., 22, 23
 BELL, F-Sgt P., 332
 BELLIMA HOTEL (Rabat), 24
 BELTS, DANISH (Map p. 278), 275
 BENECULA; *see* BRITISH AIR FORCE, STATIONS
 BEN GARDANE (Map p. 399), 401, 402, 403
 BENGHAZI (Maps pp. 61, 212, 258), 65, 71, 79, 80, 196, 207, 210, 216, 248, 253, 256, 261, 362, 363, 366, 367, 372, 376, 382, 383, 393; airfields at, 60, 67; attacked: 60, 68, 103, 219, 221, 222, 225, 359, 367; British capture, 67-8, recapture, 375; air defences, 69; Germans attack, 70, recapture, 215
 BENGHAZI-TOCRA ROAD (Map p. 212), 209
 BENINA AIRFIELD (Maps pp. 61, 399), 70, 71, 75, 76, 100*n*, 215, 248, 391; attacked, 60, 64; No. 3 Squadron to, 69, leaves, 72; Royal Air Force station created, 70
 BENNETT, AVM D. C. T., estimate of, 334; and Pathfinder Force, 447-8, 448-9; on superiority of "non-national" squadrons, 455
 BENSON, W-O A. J., 439
 BERBERA AIRFIELD (Map p. 357), 356
 BERCA AIRFIELD (Map p. 399), 377, 398; No. 459 Squadron detachment to, 568
 BERCK-SUR-MER (Maps pp. 132, 504), 140, 343, 506, 507
 BERGEN (Map p. 278), 17, 21, 265
 BERGHOF (Austria), 220*n*
 BERGEUS (Map p. 342), 347
 BERLIN (Plates p. 654), 141, 142, 475, 649, 650, 653, 654; listed for attack, 299; importance, 499, 635; attacked, 1941, 183, 1943, 469-70, 486, 496-7, 499, 600-2, 606, 1944, 658; battle of, 1943-44, 636-48, results of, 648
 BERNAY (Map p. 504), 512
 BETHUNE (Map p. 504), 511
 BEVAN, Sgt R. H., Plate p. 143
 BEYRITZ (Map p. 13), 273
 BIGGIN HILL; *see* BRITISH AIR FORCE, STATIONS
 BILBAO (Map p. 275), 285
 BILLANCOURT (Map p. 318), 308
 BINBROOK; *see* BRITISH AIR FORCE, STATIONS
 BINNEN ALSTER (Hamburg), 315, 587
 BIRCH, Gp Capt H. M., 6, 16, 21, 25, 28, 29, 30, 43, 45*n*, 46, 48-9, 120
 BIRCHAM BARREL, air-sea rescue equipment, 290*n*
 BIRCHAM NEWTON; *see* BRITISH AIR FORCE, STATIONS
 BIRCHLEY, F-Lt E., 167, 267, 273, 279
 BIR DUFAU (Map p. 399), 400, 401
 BIR EL BAHEIRA AIRFIELD (Maps pp. 203, 233), 198, 221
 BIR EL GUBI (Maps pp. 61, 203, 212), 56, 201, 207; importance of, to Gazala line, 220
 BIR EL HARIGA (Map p. 212), 202, 204
 BIR EL THALATA (Map p. 212), 101
 BIR HACHEIM (Maps pp. 61, 233), 66, 208, 220, 232, 240; Italo-German attack, 235-6
 BIR HOOKER AIRFIELD (Map p. 58), 53*n*
 BIR MALLA AIRFIELD (Map p. 61), No. 3 Squadron to, 63
 BIR MUKHEIN (Map p. 233), 246, 253, 254
 BIR SCERRARA (Map p. 233), 236
 BIR SHEFERZEN (Maps pp. 212, 233), 106, 202
 BIR TEMRAD (Map p. 212), 215
 BIR TENGEDER (Map p. 212), 215, 218
 BIR ZIDEN (Map p. 399), 384
 BISCARI AIRFIELD (Map p. 565), 561, 567
 BISCARROSSE, LAKE (Map p. 13), 23, 521
 BISCAY, BAY OF (Maps pp. 13, 153), 28, 149, 151 *et seq*, 158, 160 *et seq*, 165, 166, 264, 269, 274, 276, 283, 287 *et seq*, 310, 409, 415, 423, 425, 430, 437, 475, 506, 519, 610, 617, 632; problem of fishing boats, 272, 618; importance of, 415; U-boat losses in, 1943, 444; *see also* AUSTRALIAN AIR FORCE, Nos. 10 and 461 Squadrons; BRITISH AIR FORCE, Coastal and Fighter Commands
 BISCAY PORTS, 410; listed for attack, 178; results of delay in attacking U-boat bases in, 416*n*
 BISHOP ROCK (Map p. 13), 28
 BISLEY, F-Lt J. H. E., 228
Bismarck, German battleship, 155-6
 BISMARCK, General von, 260
 BISMARCK, Prince Otto von, 373*n*
Bissen, Swedish merchantman, 27
 BIZERTA (Maps pp. 258, 399, 412), 7, 380, 381, 401, 406; captured, 409
 BLACKPOOL; *see* BRITISH AIR FORCE, STATIONS
 BLAMEY, Field Marshal Sir Thomas, 96; and air force in Greece, 80
 BLANKENBERGHE (Map p. 504), 509
 BLESSING, Sgt W. G., 460*n*
 BLESSING, Sqn Ldr W. W., 460, 461
 BLIDA AIRFIELD (Map p. 412), 381, 398, 407, 500, 592
 BLOCKADE RUNNING, by Germany, 288, 626-7; typical cargo, 271*n*; Hitler stops, 627*n*
 BLOHM AND VOSS SHIPYARDS (Hamburg), 315, 471
 BLOIS (Map p. 504), 518
 BLOM, F-Lt W. M., 18
 BLUMER, F-Lt A. G. B., 353
 BOARD, F-O R. W., Plate p. 638
 BOCCO DI FALCO AIRFIELD (Map p. 565), 566
 BOCHUM (Map p. 480), 486-7, 498, 603-4
 BOEHM, F-Lt D. G., 84
 BOHEMIA (Czechoslovakia), 141
 BOHM, Sqn Ldr R. S., 84
 BOLOGNA (Map p. 590), 591
 BOMBAY (India), 57
 BOMBING TECHNIQUE; *see* BRITISH AIR FORCE, BOMBER COMMAND
 BOMBS, high capacity, 4,000-lb, Plate p. 591, first used, 51*n*; incendiary, Plate p. 591, 312, 598*n*; rod-type, 250-lb, close support, 223, 249; anti-submarine, Plate p. 174, 442; target indicator, 448; glider, German, success, 444, 619, described, 619*n*; Torpex filled, need for, 271
 BON, CAPE (Maps pp. 258, 399, 412), 382, 407, 565, 574; peninsula, 408, 409
 BONE (Maps pp. 399, 412), 380, 563
 BONN (Map p. 318), 335, 661
 BOOKLESS, F-Lt J. H., 427, 626
 BOON, P-O F. E., 467
 BORDEAUX (Maps pp. 13, 153), 27, 44, 151, 161, 273, 277, 283, 285, 288, 473, 509, 610, 627; seat of French Government, 23; U-boat base at, 149
 BORDJ-TATAIN AIRFIELD (Map p. 399), 403
 BORDJ-TOUAZ AIRFIELD (Map p. 399), 403
 BORKUM (Maps pp. 278, 318), 171, 279
 BORSIG RHEINMETAL FACTORY (Berlin), 470
 BORTHWICK, F-O D. W. P., 376
 BOSCH FACTORY (Stuttgart), 174*n*, 329, 659
 BOSTOCK, AVM W. D., 7*n*, 108, 120, 123; at variance with Air Marshal Williams, 122
 BOSTON AIRCRAFT, in North Africa; *see* SOUTH AFRICAN AIR FORCE
 BOTTESFORD; *see* BRITISH AIR FORCE, STATIONS
 BOUGIE, (Maps pp. 399, 412), 380
 BOULOGNE (Maps pp. 13, 132, 318, 342, 504), 20, 135, 266, 267, 341, 343, 352, 416*n*, 505, 506, 511, 514; attacked, 140, 143, 187, 188, 189, 508
 BOURKE, F-Sgt P. J., Plate p. 639
 BOURNEMOUTH; *see* BRITISH AIR FORCE, STATIONS
 BOVA MARINA (Map p. 565), 578
 BOWMAN, W Cdr A. McD., 55
 BOWMORE (Map p. 13), 42
 BOYD, Sqn Ldr A. H. (Plate p. 46), 59, 63, 98
 BOYD, P-O J. L., 228, 229
 BRACEGIRDLE, Sqn Ldr B. L., 98
 BRADWELL BAY; *see* BRITISH AIR FORCE, STATIONS
 BRASHER, F-Sgt E. K. F., 328
 BREDFA FACTORY (Milan), 591
 BREHAT, ISLAND OF (Map p. 13), 266
 BRIGHTON; *see* BRITISH AIR FORCE, STATIONS
 BREMEN (Maps pp. 318, 656), 174, 311, 606, 653, 655; listed for attack, 176*n*, 185, 299; attacked, 186, 187, 192, 315-7, 472, 589
 BRENNAN, F-Lt V. P., 227, 228, 229, 251
 BREST (Maps pp. 13, 31, 275, 282), 21, 22, 23, 40, 43,

BREST—continued

48, 49, 50, 151, 154 *et seq.*, 159, 189*n*, 285, 289, 294, 311, 473, 499; German squadron breaks out, 265-9; attacked, 51, 186, 187, 188, 266, 472, 513, 514; peninsula, 28, 38, 419, 513, 519

BREST-GUIPAVAS AIRFIELD (Map p. 504), 511, 512, 514

BRIDGEFORD, Lt-Gen W., 7*n*

BRIDGLAND, G. S. (later F-O), 530

BRIGG, F-Lt G. B., 252, 359

BRIGGS, Sqd Ldr T. J. L., 217

BRIGHTON; see **BRITISH AIR FORCE, STATIONS**

BRILL, W Cdr W. L., 310, 645, 649, 659

BRINDISI (Maps pp. 258, 565), 81

Brioni, Italian merchantman, 373

BRIOUZE (Map p. 504), 518

BRISTOL (Map p. 13), 37

BRITAIN, BATTLE OF, 77, 111, 139, 222; Churchill coins title, 33; phases of, 34; German Air Force errors in, 34, attacks, 35, 40, repulsed, 36; Australians in, 35, casualties, 35, 37; Fighter Command in, 35, after, 129; Bomber Command in, 36, bombing policy, 173-4; Coastal Command in, 36; German Navy in, loss of vessels, 36, advises against invasion, 37

BRITAIN, GREAT, 11, 96, 114, 117, 129, 142, 148*n*, 164, 180, 237, 281, 291, 295, 309, 327, 328, 331, 332, 339*n*, 395, 410, 433, 450, 452, 454, 464, 470, 487, 513, 526, 527, 546, 553, 555, 558, 563, 598, 604, 616, 640, 642, 650, 654, 663; and Australia, 1, 108, 114, 453, 556; in Empire Air Training Scheme, 2, 107, 110, 530*n*, 531, financial liability of, 109, 532, 534, lacks ground staff for, 556; air defences, 21, 144, 336, 502, 583; and France, union proposed, 23, give Balkan guarantees, 76, Vichy warned on Syria, 87, attempts to draw air attacks from, 172, authorises attacks on factories in, 308; after Dunkirk, 23; sheltered by air and sea power, 33; and American aircraft supplies, 48, 416; in battle of Atlantic, strategy, 51, 147, 176, 178, 415, 419, problem of U-boats, 148, 281, reaction to escape of Brest squadron, 269, importance to, of Bay of Biscay, 415, convoy protection problem, 416*n*; and Italy, 53; plans seizure of Rhodes, 79; in First Libyan campaign, 65, 67; Middle East strategy, 69, 78, 79, 220, 232*n*, 386, reinforcement of, 102, 227, 356; and Balkan States, 76, disturbed by German activity in, 79; and Greece, 76, 77, 79, 80; defence of Crete, 78; and Turkey, 76, 78, 79, 560; and Russia, 87; under air attack, 111, 352; and Japanese war, 165-6; slow pre-war rearmament, 169; grand strategy, 170, 174*n*, 193, 475; strategic bombing, 172, 175, 178, 478, 581, aircraft production for, 582, 592; German invasion threat, 173, 176; Far East responsibility of, 262; in North-West African campaign, 379, 409; in Sicilian campaign, 569

—**HOUSE OF COMMONS**, 87, 298

—**DEPARTMENTS**: Information, 125; Economic Warfare, 174*n*, 488; Dominions Office, 262; Foreign Office, 415-6

—**DEFENCE COMMITTEE**, 269

—**OFFICIAL WAR HISTORY**, 168*n*

BRITISH AIR FORCE, 107; expands pre-war recruiting, 1; Australians in, 1, 8, 9, 115, 117, 124-6, 128; pre-war aircrew training, 1, 52; proposes training in Dominions, 2; compared with German Air Force, 9, 111, 117; lessons from battle for France, 20; superior equipment in Battle of Britain, 34; and Empire Air Training Scheme, formation of squadrons, 110, identification of Australians in, 110, employment of, 110, Australian squadrons, 113, 114, supplies personnel for Australian units, 114, 130-1, accepts additional Australian ground staff, 114; pilots, supply of, 117, 131, 164; squadron identification letters, 163*n*; 1936 reorganisation, 169; in North-West African campaign, disadvantage of, 380; efficiency of multi-national squadrons, 395; policy, operational tours, 533*n*, officers for higher posts, 551, training and employment of Empire graduates in Britain, 552-3, navigator designation, 552-3, repatriation, 558; reinforces North-West African Strategic Air Force for Sicilian campaign, 562; radio counter-measures by, 582-3

—**AIR MINISTRY**, 88*n*, 110, 174*n*, 274, 505*n*, 527, 530, 537, 544, 545, 546, 550, 552; supplies aircraft

BRITISH AIR FORCE—continued

for No. 3 Squadron, 57; authorises attack on German aircraft in Syria, 87; and Empire Air Training Scheme, *Article XV* Australian squadrons, 96, 535, Australian administrative problems, 99*n*, 108, 109, 112, 121, 127, 529, 536, accepts additional Australian ground crew, 114, releases Australian Hudson crews, 263, endeavours to implement March 1943 agreement, 547; policy, training, 117, 118, posting, 540, 548, 549; lacks knowledge of Middle East conditions, 123; action against German aerial mine-laying, 171; and Bomber Command, authorises Hornum attack, 171, supports plan for strategic bombing attack, 175, on bombing strategy, 176, 186*n*, 310, 461, 462, on formation of heavy-bomber squadrons, 178, criticises Bomber Command policy, 298, opposes bombing of Biscay ports, 415-6, 474, orders formation of Pathfinder Force, 446, agrees on plan for location of Australian bomber squadrons, 454; and Coastal Command, 176, opposes expansion, 1942, 262, successful in retaining No. 10 Squadron in, 262, importance of Bay of Biscay, 415, selects Beaufighter for strike duties in, 611; on flight engineers, 304, 305; obtains information on Pacific war from Australian Overseas Headquarters, 525, Air Council, 528, *Directories*: *Plans*, 171; *Postings*, 109, 110, 546, 548; *Public Relations*, 528, *Committees*: *Expansion and Re-equipment*, 190; *Targets*, 174*n*, *Records Office*, 109, 110, 125, 544.

—**BOMBER COMMAND** (Plates pp. 206, 207, 302-3, 334, 462-3, 494, 591, 622, 623, 638-9, 654-5), 129, 135, 151, 266, 410, 455, 525, 632; attacks on warships, 9, 10; reconnaissance setbacks, 9-10; in daylight operations, 9, 334, 456 *et seq.*, 459 *et seq.*; leaflet dropping, 10; aircraft of, inadequate, 1939, 10, four-engined aircraft in, 50, 300, heavy bomber, changing definitions, 169, loss rate of, 178, 581, 582, 587, 662-3, bomb loads, average, 327, of Lancaster, 598*n*, place of Lancaster in, 592; and France, forces of, in, 11, in battle for France, 19, 173, operations over, 48, 186 *et seq.*, 306 *et seq.*, 334, 458-9, 460, 500, 593, 607-8; and Denmark, operations over, 17, 460; in Norwegian campaign, 17-18, 171, 172; Belgium, operations over, 18-19, 36, 51, 458-9, 660; and Germany, operations over, 36, 50, 171, 172, 174, 180, 183 *et seq.*, 311 *et seq.*, 314 *et seq.*, 320 *et seq.*, 327 *et seq.*, 339*n*, 460-1, 466 *et seq.*, 479 *et seq.*, 485 *et seq.*, 491 *et seq.*, 500, 585 *et seq.*, 593 *et seq.*, 600 *et seq.*, 636 *et seq.*, 642 *et seq.*, 650, 651 *et seq.*, 657 *et seq.*, results, 299, 581 *et seq.*, 602, 663, German air defences, 313, 314-5, 329, 1942 1,000-bomber raids: Bremen, 316, Cologne, 321-2, 482*n*, Essen, 325, the problem of Essen, 326, 483, losses over Saarbrücken, 331, in battle of Ruhr, 465, 476, 477, 479 *et seq.*, 581, 584-5, Dortmund, 486, dams attack, 492 *et seq.*, Hamburg heavily attacked, 585 *et seq.*, in battle of Berlin, 635, operations, 636 *et seq.*, 642 *et seq.*, use of blind bombing aids, 642, results, 647, 648, losses in, 648, reverse at Nuremberg, 661; in Battle of Britain, attacks invasion ports, 36, factor in German invasion plans, 37, Australian casualties in, 37; and Holland, operations over, 36, 51, 457-9; in battle of Atlantic, 48, 51, 185 *et seq.*, 311 *et seq.*, 318 *et seq.*, 334, 470 *et seq.*, 476, campaign against German warships at Brest, 154, 159, 185, 186, 266, damages *Gneisenau*, 154*n*, disputes breakout, 186-7, 267-8, in *Bismarck* action, 155; strength of, 117, 118, 168, 169, 173, 178, 300, 477, 585-6, 592, 635; and Royal Australian Air Force, Australian effort, 118, 168, 178, 181, 337, dispersal of Australians, 182, 306, Williams' plan for, 452 *et seq.*, training weakness in Australia, 553-4; formed, re-equipment and inflated hopes of, 169; retaliates to Germany's random bombing, 173; operational statistics, 175, 192, 322, 635; lacks navigational and target-finding aids, 177; estimates of bombing campaign, 183, 192, 581, 651, 663; sends reinforcements overseas, 219, 249, 300, 360; reinforcements to Coastal Command, 274, 300, 301, 410; recalls squadrons from Coastal Command, 292; factors delaying 1942 campaign, 300; distribution of effort, 306, 315; light bombers to Fighter Command, 460; and Italy, 462, 607, its attacks on, 19, 51, 174, 334, 462 *et seq.*, 499-500, 589 *et seq.*;

BRITISH AIR FORCE—*continued*

Biscay ports attacks, estimate of, 472, 474; importance of air gunners, 490-1; "Bullseye" exercises, 518; basic problem of, 582; bombing errors, 593-4; influence of weather and moon on operations, 594; ground crews, difficult task for, 636; abortive sorties, 645*n*. **Aircrew Composition**, 181, 182, 263*n*, 301-2, 539, 635-6. **Aircrew Casualties**, 456, 477, 593, 663, compared to Fighter and Coastal Commands, 455-6. **Aircrew Efficiency**, problems, 117, 181-2, 547 *et seq*, desired temperament for, 444-5, average crews, 1942-43, 455-6, 1943-44, 636. **Directives To**, "Battle of Atlantic", 51, 147, 174, on Admiralty needs, 311; 334, 465, 472, 499, in 1939, military objectives defined, 170, on German targets, 1941, 171, 176, 178, 185-6, 609, 1942, 308, 310, 313, 320, 1943, 475, 476, 649, 1944, 650. **Meteorological Forecasting**, inaccurate, effects bombing operations of, 1941, 177, 1942, 314 *et seq*, 320, 321, 324, 326, 327, 1943, 469, 471, 491, 497, 588-9, 590, 602, 607, 637, 639, 640, 652, 1944, 647, 659, 662. **Mine-Laying**, operations, 1940, 171-2, 189 *et seq*, 1942, 306 *et seq*, 1943, 471*n*, 474, 476, 498, 500, 593, 654, 1944, 652, 661, results, 593, 611, mines laid, 1943, 593*n*. **Morale**, good, reasons for, 477-8, in winter 1943-44, 636, after heavy losses of 1944, 663. **Mosquito Force**, operations by, 460-1, 587, 597, 599, 605-6, 636, 639, 644, 645, becomes Light Night Striking Force, 648, role of, 648. **Plans**, 1939, 169-70, 172; 1941, "Oil", 170, 172, 176, 4,000-bomber, 175; 1942, 299, 302, 309, against breakout of Brest squadron, 265. **Policy**, 168, 635; bombing, 9, 10, 19, 169, 170, 172, 174, 298-9; with France, during battle for, 19, 172, after fall of France, 173-4, Biscay ports, 472-3; target systems, 50, 51, 172, 298-9, 499; naval targets, 51, 173, 178; with Italy, 172, 462; after Norwegian campaign, 172; conservation, 178, 181; light bomber, 190; area bombing, 298*n*, 300, 320, 461, 462, 465-6, estimates of, 174, 298; night bombing, 334, 456, 495; daylight, 461; operational tour, 533*n*. **Radar**, introduction of "Gee", 298; of airborne "H2S", *see* under **Technique**, **Pathfinder Force**. **Radio Counter-Measures**, success of, against German night defences, 583 *et seq*, 596, 638-9, 646, 658; Admiralty objections to radio-telephone jamming, 585*n*; use of "Window", 595. **Role**, 470-1, 635; light bomber, 190, 334-5; in sea war, 269, 609. **Technique**, bombing, development of, 168, 190, 311, 323, 465, 476-7, 486, 500, accuracy, reasons for error, 177-8, 593-4, 595; over-all flight plan, 182-3, 308-9; of aircraft over target, 183; introducing new crews to operations, 186; mine-laying, 190; concentration, development of, 308-9, 315, 320, 322, 329, 581, 583, 595, 607, 646, 661; fire-raising, 309, 312, 329, 586 *et seq*; target finding, pre-pathfinder, 309, 311, 312, 315, 317, 321, 323, 324, 327, 329, 330; Pathfinder, 446 *et seq*, 448-9, 466, 480, 598, Oboe, 448, 604, H2S, 471, 495, 585, 641, sky-marking, 481 *et seq*, 607, master of ceremonies, 500, 590-1, 599-600, 647, incendiary, 581, route marking, 595, 607, low-level marking, 599; against dams, 493 *et seq*; long-distance, 495, 497-8, 641. **Tactics**, 298-9, 479, 500, on moon-lit nights, 320, 462, 468; light-bomber intruder, 335; light-bomber, 457 *et seq*; of Mosquito aircraft, 460-1; in track keeping, 480; to prevent concentration of ground defences, 495-6, 644; diversionary attack, 497, 499, 596, 598, 599-600, 601 *et seq*, 605 *et seq*, 636-7, 641, 644 *et seq*, 652, 654, 658 *et seq*; against early-warning radar, 499, 644-5; evasive routeing, 583; against night fighters, 596, 644*n*; feint routeing, 607, 639, 653, 654; diversionary marking, 636, 642; simulated fighter flares, 639. —**COASTAL COMMAND**: (Plates pp. 14-15, 46, 79, 110, 174-5, 207, 270-1, 302, 430-1, 622), 41, 335, 436, 455, 513, 525, 547; and No. 10 Squadron, 2, 16; in battle of Atlantic, 6, 7, 11 *et seq*, 20 *et seq*, 25 *et seq*, 38 *et seq*, 44 *et seq*, 148-9, 150 *et seq*, 156 *et seq*, 162 *et seq*, 264 *et seq*, 271 *et seq*, 276 *et seq*, 282 *et seq*, 288 *et seq*, 294 *et seq*, 414 *et seq*, 420 *et seq*, 425 *et seq*, 432 *et seq*, 438 *et seq*, 616, 617 *et seq*, 623 *et seq*, 633 *et seq*, bases in Northern Ireland, 38, 39-40, 41, 45, 46, 147-8, effect of bad weather on operations, 43, 147, counters German offensive, 48, air cover over Atlantic, 147, 415, 621-2,

BRITISH AIR FORCE—*continued*

U-boat sightings, 148, 149*n*, 281, 286, 415, 416*n*; in North Sea operations, 11, 12, 271-2, 278-9, 288-9, 616; in Norwegian campaign, 17, 18, 21, in Battle of Britain, 28, 36-7; takes over Photographic Reconnaissance Unit, 32; effect of fall of France, 37; over Bay of Biscay, assists blockade of ports along, 42, poor meteorological reports, 45*n*, operations, 154 *et seq*, 160 *et seq*, 289 *et seq*, 417 *et seq*, 423 *et seq*, 429 *et seq*, 617 *et seq*, 624-5, 626 *et seq*, 633-4, patrol systems, 158-9, 162, 285, 420 *et seq*, 430, 441, 474, 519, 618, 620, 624-5, with British navy, 155*n*, 618, hunts German tanker, 166-7, problem of fishing vessels, 272, 618, tactical situation, 286, anti-shipping effort, 418, long-range fighters, 419, reinforcements, 618, assistance from Fighter Command, 618, efforts to increase flying-boat range, 624; German warships at Brest, 43, 49*n*, 159, breakout of, weakness of strike squadrons, 266, operations against Brest squadron, 267-9; Australians in, 111, 263, 337; in Iceland, operations, 148, 149-50, 155, 156, 424-5, 427, 432, 439, 621 *et seq*; aircraft armament, 148, 150, 274, 279, 286, 287-8, 619, 622; strength, 149, 265; aircraft of, 149, 264, very-long-range aircraft, 270, 414-5, 610, Hampdens, 611, 615, Beaufighters, 611-2; damages *Gneisenau*, 154*n*; assesses volume coastal trade, northern Spain-France, 155; off Norway, 167, 279 *et seq*, 289, 420, 612 *et seq*; mining duties of, 172*n*, 189-90, 610; effect of Japanese war, 262; shortage and inexperience of aircrews, early 1942, 262; Air Ministry refuses permission for expansion, 262, sends reinforcements overseas, 262, 269, 610; and Bomber Command, reinforcements from, 274, 281, 300, 410, presses Bomber Command to attack Biscay ports, 281, 472, joins in 1,000-bomber raid, 284*n*, loses Bomber Command squadrons, 292; and No. 455 Squadron, 301, 418; maintenance problems, 428-9, 632-3; estimate of operations, 1943, 444; temperament required by, 444-5; casualties in, compared Bomber Command, 456; operations in English Channel, 507, 612; Leigh light, reasons for delay, 585*n*; in the Azores, 621. **Aircrew Composition**, 15, 263*n*, 303*n*. **Deployment**, 11, 14, 46, 264, 266, 287, 410-1, 415, 424, 429, 432, 437-8, 611, 618, 621. **Employment**, 20, 21, 263, 268, 269, 609. **Plans**, anti-submarine, 160-1, 271, against breakout of Brest squadron, 265-6, for North-West African campaign, 409 *et seq*. **Policy**, Admiralty, 25, 147, 150-1, 264, 415, 422; very-long-range aircraft, 264; operational tours, 533*n*; anti-shipping, 609-10. **Tactics**, of flying-boat against fighters, 49, 157, 160, 439 *et seq*, 618; convoy escort, 148, 622-3; anti-shipping strike, 279-80, 289, 611; anti-submarine, 283, 284*n*, 293, 417, 620, 622-3; 100-foot spacing for depth-charges, 426-7; night attack on submarines, 430*n*, 620; daily U-boat probability area signals, 432; against surfaced submarines, 442-3, 628-9; use of 6-pounder gun in Mosquito, 633. —**EASTERN AIR COMMAND**: 386; in North-West African campaign, 380, 411*n*, operations, 380; in Mediterranean Air Command, 388; reinforcements for, 410-1, 412. —**FIGHTER COMMAND**: (Plates pp. 46, 142-3, 335, 495, 526), 118*n*, 151, 335, 344, 525, 547; training in, 11, 502, 505, 506, 518; and France, its forces in, 11, in battle for France, 19-20, its operations over, 1941, 129, 131, 133 *et seq*, 142-3, 1942, 341 *et seq*, 347 *et seq*, 1943, 503, 505 *et seq*, 511 *et seq*, 516 *et seq*, in Dieppe raid, 350-1, in Operation Starkey, 513-4; in Battle of Britain, 34 *et seq*, Australian casualties, 35; strength, 34, 129-30, 144, 168, 336, 502; squadrons of, initial equipment, 34*n*, 130; after Battle of Britain, 129; operations of, code names, 129-30, in 1942, 345, 347, estimate of, 346, 354, 515, fighter-bomber, 515; and Belgium, its operations over, 1941, 131, 133, 137, 143, 1942, 343, 352, 1943, 507 *et seq*, 512, 518; effect of 1941 campaign, 139; and Royal Australian Air Force, place of No. 452 Squadron in, 1941, 139, three squadrons to Australia, 337, Australians in, compared other commands, 337; and night fighting, 144, importance of Beaufighter to, 145, ground-controlled interception, 338, 339-40; aircraft for, 145, 351, 502, 515, limitations of short-range, 502-3, armament development, 515,

BRITISH AIR FORCE—continued

585*n*; formed, 169; radar for, compared Western Desert, 224*n*; against Brest squadron, 265-6, 268; demand for pilots, 303*n*, supply, 336; assessment of, 354; required temperament, 444-5; sends reinforcements overseas, 336, 502; problems of employment, 336, air defence, 352; in battle of Atlantic, 439, 505-6, 513, 519, 520-2, 618; casualties compared Bomber Command, 456; takes over No. 2 Group, Bomber Command, 460; and Holland, its operations over, 507 *et seq.* 512, 518; operations round Channel Islands, 511; ranger patrols defined, 515, tasks, 518; defeats German attacks, 581. Employment, 129, 336-7, 345, 348, 349-50, 502; of night-defence force, 144, 518; with light bombers, 190; in sea war, 269, 609. Policy, 129, 336-7, 507, 511; higher tactical training, 505*n*; of aircraft employment and use of night-fighter force, 515; operational tours, 533*n*. Tactics, 512; day-fighter, 131, 140, 142-3, 144, 347, 350, 503, 507 *et seq.* Circus operations, 133; bomber-escort, 136; night-fighter, 144-5, 339-40, 516; use of radar, 502; Biscay patrols, 520-1. —FLYING TRAINING COMMAND, 120*n*, 478, 529, 530, 541, 548, 551. —GIBRALTAR, 410, 412, 621; operations from, 1940, 29-30, 1941, 165, 1942, 277, 284-5, 288, 294, 1943, 388, 421, 427, 431, 432, 534, 618, 620; in North-West African campaign, 410 *et seq.* —MIDDLE EAST COMMAND: (Plates pp. 14, 46-7, 78-9, 238-9, 398-9, 430, 527, 590), 97, 98*n*, 101, 118*n*, 195*n*, 345, 387, 389, 390, 391 *et seq.* pre-war, 52-3; Australians in, 52, 53; ceases to hold largest British air force, 53; prepares for war with Italy, 54, action on entry of, 55, 56; and Italian Air Force, compared, 54-5, 60; in Greek campaign, sends squadrons to Greece, 56, 60, 77, 78, difficulty in meeting British promises of aid, 80, German Air Force keeps Hurricanes in Western Desert, 80; and Royal Australian Air Force, 58, 81, 103, administrative problems, 57, 66, 70-1, 96 *et seq.* 112, 123, 127, need for Australian liaison office, 71, 112; in First British Libyan campaign, air preparations, 60, during battle of Sidi Barrani, 62, Bardia, 64, 65, Tobruk, 66-7, difficulties of advance to Benghazi, 67; in First German African campaign, 71-2; reinforcements to, from Britain, 71, 78, 247, 253, 300, 360, 502, from American and South African air forces, 363; situation in 1941, 76, 86; on Crete, 85; in Syrian campaign, authorised to attack German aircraft in Syria, 87, forces for, 87, 92, plans, 88-9, compared to Greek campaign, 89; estimate of 1941 bomber operations, 103-4; in Second British Libyan campaign, preliminary, 106, 196, operations during, 195 *et seq.* 201 *et seq.* 207 *et seq.* 213 *et seq.* problem with fighters, 196-7, Dominions request adequate air support, 196*n*, results, 197, 198, organisation of fighters, 197, bombers of, 198, 208, fighter effort, 198, 208, fighters narrowly miss destruction, 202; fighters of, 164, 193*n*, 216, 221, 223, 234*n*, 575-6; basic problems, 193, 219, 221, 250; in Second German African campaign, 214 *et seq.* radar in Western Desert, 216, 224; reinforcements from, to Far East, 218, 220-1, 262, to Malta, 381, to Desert Air Force in Tunisia, 403; at Gazala line, 220 *et seq.* disposition, 221, activity, 221; reorganisations, 221, 386; in Third German African campaign, 230 *et seq.* 240 *et seq.* 247 *et seq.* influence of fighters, 231, 240, 241, 244; condition of, at end, 243; in Malta convoys, 237-9; in Alamein line operations, 246-7, 253-5, 256-7, 364-5, results, 246*n*, 255, 261, fighter defence, 364; army cooperation squadrons, 250, 392; in supply war, 255, 256, 261, 356-7, 358 *et seq.* 372-3; convoy operations, 357-8; battle of Alamein, 363, operations, 369 *et seq.* 375 *et seq.* fighter losses, 374*n*, compared German Air Force, 378; importance, 378-9. German estimate, 384*n*, 1942 estimate of, 377, 384; formation of Mediterranean Air Command, 388; in Tunisian campaign, 402; in Sicilian campaign, role, 562-3. Deployment, 54, 56-7, 60, 221, 237-8, 250, 360. Policy, 55; close-support, 221 *et seq.* against German air force, 254. Tactics, fighter, 105*n*, 216-7, 358, 362*n*, 364; light bomber and fighter coordination, 221; fighter-bomber, 222-3, 370, 407, 575; close-support, 232, 234, 240, 402,

BRITISH AIR FORCE—continued

405; torpedo, 359, 372; escorted bomber, 371; of squadrons in advance, 375. Subordinate Formations: *Western Desert Air Force*, 60, 195, 198, 386, importance of Gambut, 241, Alamein operations, 363-4, 369, 375, estimate of, 384, absorbed by North-West African Air Force, 386*n*, 389, in Tripolitanian campaign, 400-1, in Tunisian campaign, 401 *et seq.* *Cyrenaica Command*, 70, 74; *British Air Force in Greece*, operations, 77, 78, 80 *et seq.* formed, 77, employment, 78, 80-1, 82*n*, reinforcements to, 80, disagree with Greeks on tactics, 81, claims discussed, 82*n*, 84*n*, aircraft, 85, estimate, 85, withdraws to Crete, 85, compared to Germans, 86; *Palestine and Transjordan*, 88, 89, 93, 95; *Aden*, 248, 356, 389, 391; "*Force D*" (*Deeforce*), 360, 391, 395; *Air Headquarters Egypt*, 364*n*, 389, 391, 393; *Desert Air Force*, 386, 563, 569, under North-West African Tactical Air Force, 388, 401 *et seq.* 563 *et seq.* *Malta*, 60, 78, 386 *et seq.* 566, 567, reinforcements for, 30, 227, 229, 236, 238, 252, 255, 284, 381, 502, operations, 56, 225 *et seq.* 236 *et seq.* 251-2, 255, 289, 362, 396 *et seq.* 567, 570 *et seq.* brings relief to Russian front, 225-6, 229, 336, Italian Air Force fails, 225, in supply war, 226, 253, 255, 256, 289, 358, 373, conditions on, 227, 252, supply situation, 228, 381, 1942 defence compared to Battle of Britain, 230, results of control of central Mediterranean, 362 (see also CONVOYS, Malta); *MALTA; East Africa*, 389, 391; *Levant*, 389, 391; *Air Defence Eastern Mediterranean*, 391, 569, 579. —TECHNICAL TRAINING COMMAND: 120*n*. —WEST AFRICA COMMAND: 47-8, 294. —FORCES: *Advanced Air Striking Force*, 11*n*, 169, 172, operations, 18, 19, 36, 51; *Royal Air Force Component of British Expeditionary Force*, 11*n*, 18, 173*n*; *Second Tactical Air Force*, 515; see also *BOMBER AND MIDDLE EAST COMMANDS* (above). —GROUPS: British compared American, 564*n*. No. 1, 301, 312, 451, 479; in battle for France, 19, 173; Australian squadrons in, 116, 181. No. 2, 30, 129; Battle of Britain, 36; east coast security patrols, 48; battle for France, 172; detachments to Malta, 219; operations of, 190-1, 334-5, 456 *et seq.* 461; in sea war, 609 *et seq.* Australian squadron in, 452. No. 3, 299; receives 4-engined bombers, 300; drops first 4,000-lb bomb, 51*n*; operations, 312, 323, 446. No. 4, Australian squadron in, 451; operations, 312*n*, 593. No. 5, 301, 495; Australian squadrons in, 179, 451; airfield and aircraft position, 180; mine-laying, 189, 266, 306-7; against Brest squadron, 268; receives 4-engined bombers, 300; special approach of, to operations, 649; operations, 312, 456, 486, 498, 500, 591-2, 599, 644, 651. No. 8, 181, 301; formed as Pathfinder Force, 446 *et seq.* selection of aircrew for, 447; estimate of early operations, 448; importance of Mosquito to, 476-7; responsibility of, 593; operations of, 464-5, 467 *et seq.* 479 *et seq.* 483 *et seq.* 489 *et seq.* 496 *et seq.* 586 *et seq.* 593 *et seq.* 600 *et seq.* 636 *et seq.* 642 *et seq.* 651 *et seq.* 657 *et seq.* No. 9, 338 *et seq.* Australian squadron in, 145; conditions in, 1941, 145. No. 10, in Battle of Britain, 34; role, 1943, 511; operations, 516, 519, 618. No. 11, 340, 344, 346, 349, 350, 459, 511, 512; strength of, 1940, 34; Australian squadrons join, 133, 340, 349; role of, in Brest squadron action, 265-6. No. 12, 131, 342, 355, 512; in Battle of Britain, 34. No. 15, 264, 265, 280, 621; and No. 10 Squadron, 7, 46; role, 20, 148, 269; search for flying-boat bases, 42; reinforced by Bomber Command, 274*n*; and North-West African convoys, 410-1; and Battle of France, 432, 438. No. 16, 271, 611; in battle for France, 20; role, 269; reinforces No. 19 Group, 410. No. 18, 14, 21, 265, 289, 611, 618, 621*n*; role, 269, 410-1; Norway operations, 272, 273, 279; inadequate strength of, 280; in battle of Atlantic, 284, 432. No. 19, 152, 154, 159, 160, 162, 166, 265, 279, 286, 287, 292, 294, 434, 610, 619, 621, 626; formed, 46; and Brest squadron, 49, 266; in *Bismarck* hunt, 155; and No. 10 Squadron, 156; and battle of Atlantic, 264, 276, 283, 417, 423, 432, 438; reinforced by Bomber Command, 274*n*; role, 269, 274; strength, 272, 618; in North-West

BRITISH AIR FORCE—*continued*

African convoy operations, 410-1. No. 38 (Transport), in Sicilian campaign, 574. No. 50 (Training), 540. No. 51 (Training), 540. No. 54 (Training), 120n, 529. No. 100, 584. No. 201, controlled by Royal Air Force Headquarters, Middle East, 55; in Second British Libyan campaign, 219; in Mediterranean supply war, 219, 237-9, 358-60, 362, 382-3; effects of Japanese war on, 237; in battle of Alamein, 372-3, 376; in Mediterranean Air Command, 389, 395. No. 202, 55, 59n; effected by transfers to Greece, 57; and No. 3 Squadron, 62; compared with Italian Air Force, 68, No. 203, 389. No. 204 (Middle East), 74. No. 205, 219, 249, 360, 386, 389, 562; during Second British Libyan campaign, 195n, 196, 219; in Second German African campaign, 216; in Gazala line operations, 221, 226; at Malta, 219, 222; in Malta convoy operations, 238; in Third German African campaign, 245, 248, 249; in Alamein line operations, 253, 254-5; in Tunisian campaign, 408. No. 206 (Maintenance), 102, 389. No. 209, 391. No. 210, 391. No. 211, formed, 221; in Gazala line operations, 222, 224-5; in battle of Alamein, 363, 374. No. 212, 363, 391. No. 216, 389. No. 219, 391, 394. No. 242, 389. No. 244, 401. No. 247, 621, 622.

—STATIONS: Aboukir (Map p. 61), No. 3 Squadron to, 1941, 74. Abu Sueir (Map p. 58), No. 450 Squadron to, 1942, 218; No. 459 Squadron to, 1942, 255. Amiriya (Maps pp. 61, 233), 53n, 104, 256, 365, 395, 563; No. 3 Squadron to, 1941, 95, 1942, 244, 364; No. 450 Squadron to, 1942, 244; No. 458 Squadron to, 1943, 395. Andreas (Maps pp. 132, 342), 146; No. 457 Squadron at, 131; No. 452 Squadron to, 1942, 345. Angle (Map p. 13), 435. Babdown Farm (Map p. 342), 548. Baginton (Map p. 132), No. 457 Squadron at, 131. Ballykilly (Map p. 13), 38n, 415. Bassingbourn, 111. Benbecula (Map p. 278), 38n; No. 455 Squadron at, 616. Biggin Hill (Maps pp. 132, 342, 504), 135, 136. Binbrook (Maps pp. 179, 318; Plate p. 622), 460, 467, 635, 636, 640; No. 460 Squadron to, 1943, 479. Bircham Newton (Map p. 278), 272, 290n. Blackpool, 111. Bottesford (Maps pp. 179, 318), 465, 479, 598; No. 467 Squadron at, 451. Bournemouth (Map p. 318), 116, 118, 120, 264, 271, 524, 528, 540, 549, 551, 553; No. 3 Personnel Reception Centre to, 114; Australians at, 117, 124, 125, 303, 451, 539, 541; inadequacies of, 125, 529; waiting period for aircrew at, 540n; Aircrew Selection Board at, 548. Bradwell Bay (Maps pp. 318, 504), 464, 512. Brighton (Maps pp. 179, 318), 450, 479; No. 460 Squadron at, 181, 301. Brighton, 553, 554; Australian holding unit to, 551. Calshot (Map p. 13), 24, 272. Castle Camps (Map p. 504), 518. Chedworth, 505. Codrington, 180. Colerne (Map p. 504), 522; No. 456 Squadron to, 1943, 515. Coltishall (Maps pp. 179, 278, 504), 266, 267; No. 453 Squadron to, 1943, 512. Debden (Map p. 342), *see* Debden Wing. Drem (Map p. 342), No. 453 Squadron re-formed at, 1942, 337, 349. Driffield (Maps pp. 13, 179, 318), 35; No. 466 Squadron formed at, 451. East Fortune (Map p. 132), 145. Eglinton (Map p. 13), 38n. Exeter (Map p. 504), 511. Farnborough (Map p. 13), 39. Fayid (Map p. 58), No. 458 Squadron ground crews to, 250; No. 462 Squadron formed at, 1942, 360. Felixstowe (Map p. 13), 268. Feltwell (Maps pp. 179, 318), 459. No. 464 formed at, 452. Ford (Maps pp. 179, 504), 512. Geneifa (Map p. 58), 112, 120. Gianacis (Map p. 58), 372; No. 459 Squadron to, 382. Hamworthy (Map p. 13), No. 461 Squadron to, 429. Hawkinge (Map p. 318), 482. Harrogate, 529. Helipolis (Map p. 58), No. 1 Air Ambulance Unit to, 1941, 102, 1942, 248. Helwan (Map p. 58), No. 3 Squadron to, 1940, 58. Heston (Map p. 31), 31. Holme-on-Spalding Moor (Maps pp. 179, 318), 301, 449; No. 458 Squadron to, 1941, 180. Horchurch (Maps pp. 432, 504), 351, 353, 511; No. 453 Squadron to, 1942, 349, 1943, 507. Isley (Map p. 504), No. 453 Squadron to, 1943, 511. Idku (Map p. 58), No. 459 Squadron to, 1942, 255; No. 451 Squadron to, 1943, 391, 569. Ismailia (Map p. 58), No. 3 Squadron to, 1940, 58. Jurby (Map p. 132), No. 457 Squadron to, 131. Kabrit (Map p. 58), 250. Kalafra (Map

BRITISH AIR FORCE—*continued*

p. 565), 271. Kaldajarnes (Map p. 270), 38n, 150n. Kenley (Maps pp. 132, 342, 504; Plates pp. 142, 143), 343; No. 452 Squadron to, 1941, 133; No. 453 Squadron to, 1943, 513. Khatatha (Map p. 58), 53n. Khormakser (Map p. 357), 357. Kirton-in-Lindsey (Maps pp. 132, 342), 131, 133; No. 452 Squadron formed at, 1941, 130; No. 457 Squadron to, 1942, 349. Leconfield (Maps pp. 179, 318), 479; No. 466 Squadron to, 1942, 451. Leuchars (Map p. 278; Plate p. 207), 167, 266, 612, 613, 614, 616; No. 455 Squadron to, 1942, 301. Lichfield (Maps pp. 179, 318), 302, 479, 547, 549, 550. Limavady (Maps pp. 13, 270), 38n, 633. Lossiemouth (Map p. 278), 111. Ludham (Map p. 342), 355. Luqa (Map p. 565), 56, 227, 236, 239, 251. Lympne (Map p. 132), 134. Manston (Maps pp. 13, 132, 179, 342, 504), 131, 267, 268, 341, 353, 513; No. 453 Squadron to, 1943, 512. Martlesham (Maps pp. 132, 342, 504), 142, 513; No. 453 Squadron to, 1942, 353, 1943, 512. Methwold (Maps pp. 179, 318; Plate p. 622), No. 464 Squadron to, 1943, 459. Middle Wallop (Maps pp. 179, 504), 516, 519; No. 456 Squadron to, 1943, 515. Mildenhall (Map p. 318), 298. Molesworth (Maps pp. 179, 318), No. 460 Squadron formed at, 1941, 181. Mombasa (Map p. 357), 356. Moreton-in-the-Marsh, 551. Mount Batten (Map p. 13; Plates pp. 46, 175, 430), 15, 21, 22, 30, 38, 39, 40, 43, 47, 48, 156, 158, 160, 162, 272, 284, 286, 425, 620, 629, 632, 633; air raids on, 26, 44, 46, 49; No. 10 Squadron to, 1940, 14, leaves, 1941, 49, returns, 147; No. 461 Squadron formed at, 1942, 276; unable to hold two flying-boat squadrons, 292. North Coates (Maps pp. 132, 278), 131, 271, 272, 273, 611. Northolt (Maps pp. 132, 342), 136, 341. North Weald (Map p. 342), *see* North Weald Wing. Oban (Maps pp. 13, 278, 282; Plate p. 174), 7, 39, 41-2, 45, 49; No. 10 Squadron detachment to, 38. Pembroke Dock (Maps pp. 13, 153, 423; Plates pp. 14, 79, 430), 6, 7, 12, 14, 15, 43, 45, 50, 153, 156 *et seq.*, 162, 163, 165, 272, 435, 440, 619; No. 10 Squadron to, 49; No. 461 Squadron to, 1943, 429. Perranporth (Maps pp. 13, 504; Plate p. 495), 155, 514; No. 453 Squadron to, 1943, 513. Poole (Map p. 13), 7; No. 461 Squadron to, 1942, 293. Portreath (Map p. 504), No. 453 Squadron to, 1943, 512. Predannack (Maps pp. 13, 504), 155, 274, 284, 513, 520, 521; No. 453 Squadron to, 1943, 511; No. 456 Squadron detachment to, 1943, 519. Qrendi (Map p. 565), 381n. Redhill (Maps pp. 132, 342, 504), 346; No. 452 Squadron to, 1941, 142; No. 457 Squadron to, 1942, 345. Reykjavik (Maps pp. 270, 282), 38n, 439, 616, 51. St Eval (Maps pp. 13, 31, 270), 28, 38, 49, 50, 163, 266, 267, 287. Shaiba (Map p. 357), 356. Shallufa (Map p. 58), No. 458 Squadron to, 1942, 360, 1943, 395. Shoreham (Maps pp. 132, 504), 341, 507. Skeabrae (Map p. 278), No. 453 Squadron to, 1943, 514. Skellingthorpe (Map p. 318; Plate p. 206), No. 455 Squadron to, 1941, 180. Southend (Maps pp. 342, 504), 505; No. 453 Squadron to, 1942, 352, 353. Stranraer (Maps pp. 13, 278), 7; No. 10 Squadron to, 42. Sullom Voe (Map p. 278), 157. Sumburgh (Map p. 278), 21, 294, 295, 417; No. 455 Squadron detachments to, 1943, 431, 614. Swindery (Maps pp. 179, 318), 179, 180, 300, 301; No. 455 Squadron formed at, 1941, 115. Tain (Map p. 278), 616. Ta Kali (Map p. 565; Plate p. 238), 227 *et seq.*, 362n. Talbenny (Map p. 13), 294. Tangmere (Maps pp. 132, 179), 136, 514, 598; No. 453 Squadron to, 1943, 512. Thornaby (Map p. 278), 290n. Thorney Island (Map p. 13), 37, 266, 267. Tiree (Map p. 13), 38n. Uxbridge (London, Plate p. 110), 111, 114, 116, 120. Valley (Maps pp. 132, 342; Plate p. 335), 146, 337, 515; No. 456 Squadron formed at, 1941, 145. Waddington (Maps pp. 179, 318; Plate p. 638), 635, 638, 641; No. 463 Squadron formed at, 1943, 636. Wadi Natrun (Maps pp. 58, 258), 256; No. 1 Air Ambulance Unit to, 1942, 248. West Malling (Maps pp. 132, 342), 131, 346. Wick (Maps pp. 31, 278), 273, 279, 612 *et seq.*, 616. Wigsley (Maps pp. 179, 318), 185, 309; No. 455 Squadron to, 300. Wigtown (Map p. 13), 542.

—WINGS: British compared with American, 564n. No. 2 (Operational), operations of, 197 *et seq.*

BRITISH AIR FORCE—continued

203 *et seq.*, 209 *et seq.* No. 232, 370, 374, 386, 403; formed, 363. No. 233, 221n. No. 235, 395; No. 459 Squadron in, 237. No. 239, 222, 386, 564; organisation of, 221n; role, 222, 240, 567; locations: Gambut, 222, Malta, 573, Pachino, 574, Agnone, 575; in Gazala line operations, 222 *et seq.*; in Third German African campaign, 231 *et seq.*, 240 *et seq.*; importance of Gambut to, 241; reduces German fighter force, 242-3; in Alamein line operations, 246-7, 253 *et seq.*, 256-7; gives new pattern for close support, 250; in battle of Alamein, 369 *et seq.*, 375 *et seq.*; in Tripolitanian campaign, 383, 400-1; in Tunisian campaign, 401 *et seq.*, 407 *et seq.*; in Sicilian campaign, 567, 573-4, 575 *et seq.* No. 243, 221n. No. 244, 386, 573. No. 245, 395. No. 249, 386. No. 252, 55. No. 253, 100. No. 257, 102, 195n. No. 258, 74, 196, 198, 210, 211. No. 262, 196, 198. No. 269, 196. No. 270, 196, 208, 218. No. 285, 386. No. 322, 577n. No. 328, 563, 568, 579. No. 330, 562. No. 331, 562. Biggin Hill, 136, 346, 347, 509. Dbden, 352. Hornchurch, 346, 352, 507 *et seq.* Ibsley, 511, 512. Kenley, 134 *et seq.*, 137, 138, 140, 142-3, 268, 343, 345 *et seq.* Northolt, 136. North Weald, 347, 352. Tangmere, 136, 344, 354. Ventura (aircraft), 456 *et seq.*

—SQUADRONS: No. 1, 20. No. 6, 66, 71, 99, 100n, 250n; operations, 73, 240. No. 8, 218n; operations from Aden, 248, 356-7, 391. No. 10, 334, 455, 604, 642; transferred to Middle East, 360. No. 11, 85n, 195n, 218n, 219. No. 12, 189, 301, 450; operations, 18, 331, 487. No. 14, 390, 398; in Malta convoy operations, 238, 240n; in Third German African campaign, 247; operations eastern Mediterranean, 382, 398; in Tunisian campaign, 407; operations round Sicily, 568. No. 15, 481. No. 21, 456-7. No. 22, 167. No. 25, 519. No. 30, in Greece, 77, 83, 85n. No. 33, 195n, 221n. No. 35, 490. No. 37, 9, 195n; operations in Mediterranean, 103, 250, 360. No. 38, 195n, 219, 563; operations in Mediterranean, 103, 237, 238, 252, 256, 358, 372, 396, 398. No. 39, 103, 219, 237; operations from Aden, 56; operations in Mediterranean, 238, 356, 358, 373, 381, 396, 397. No. 40, operations in Mediterranean, 360, 361, 381, 567. No. 41, operations, 341, 344, 355, 510. No. 42 (Plate p. 270), torpedoes *Lutzow*, 157; watches *Tirpitz*, 266; attacks Brest squadron, 267; Norwegian operations, 273, 279. No. 43, 572. No. 44, Bomber Command operations, 287, 301, 310-1, 334. No. 45, 195n, 218n; in Syrian campaign, 92, 93, 94. No. 47, 372. No. 48, Coastal operations, 265, 287, 294. No. 49, 301; operations, 310-1, 327. No. 50 (Plate p. 206), 179, 301, 492; Bomber operations, 16, 17, 310-1, 330. No. 51, 274n, 289, 419. No. 53 (Plate p. 302), 152, 265, 279, 304; in North Sea operations, 271-2, 273, 278; in Biscay, 274, 283, 440, 442; in Caribbean, 287, 294. No. 55, 70, 71, 195n, 218n, 363, 371. No. 57, 186. No. 58, 274n. No. 59, 152, 265; North Sea operations, 272, 273, 278, 279, 288; in Battle of Atlantic, 274, 425, 433, 435, 442, 623, 629; in Bomber operations, 284n. No. 61, 287, 288. No. 65, 20, 131. No. 69, 219, 397; operations in Mediterranean, 238, 358, 396. No. 70, 195n; in Mediterranean, 56, 249, 250, 360. No. 72, operations, 11, 35, 354, 572. No. 73, 71, 221n; in Western Desert, 69, 72, 74, 218. No. 76, 360. No. 77, 274n, 291, 334. No. 80 (Plate p. 47), in Western Desert, 56; 221n, 247, 257, 365, 374; in Greece, 78, 80 *et seq.*; in Syrian campaign, 88n. No. 83, 17, 37. No. 84, 218; in Greece, 78, 83 *et seq.*; in Syrian campaign, 87, 88, 104. No. 85, 516. No. 86, 265; in Brest squadron operations, 266, 267; Norwegian operations, 273; in battle of Atlantic, 415, 424, 427, 432, 442, 618, 622, 623, 626. No. 87, 36. No. 89, 252, 380-1. No. 91, 96. No. 92, 247, 371. No. 94, 221n. No. 95, 47. No. 97, in Bomber operations, 179, 310-1, 334. No. 99, 9. No. 100, 588. No. 101, 654. No. 102, 464. No. 104, in Mediterranean operations, 236, 250, 360, 381. No. 105, 192, 460-1. No. 106, 179, 306. No. 107, 17. No. 108, in Mediterranean operations, 195n, 249, 250, 572. No. 111, 572. No. 112, 53, 103; in Western Desert, 56, 106; in Greece, 80, 82, 84, 85n; on Crete, 85, 86n; in Second British Libyan campaign, 195n, 196, 197 *et seq.*, 203 *et seq.*, 209 *et seq.*; in Second German

BRITISH AIR FORCE—continued

African campaign, 214 *et seq.*, 221n; Gazala line, 222; in Third German African campaign, 231 *et seq.*, 240 *et seq.*; at Alamein, 364, 373, 377; in Sicilian campaign, 567, 575. No. 113, in Greece, 84, 85n; in Western Desert, 100, 195n. No. 114, 275, 335, 381. No. 115, 314. No. 117, 248. No. 119, 156. No. 120, 265; in battle of Atlantic, 280-1, 287, 410, 415, 425, 433, 439, 623. No. 122, Fighter operations, 507 *et seq.* No. 126, on Malta, 228, 229, 251. No. 127, 257, 374. No. 129, 344, 354. No. 137, 505, 506. No. 139, 19, 460-1. No. 140, 350. No. 142, in Bomber operations, 19, 450; in North-West African Strategic Air Force, 562n. No. 143, 265. No. 144, 295 *et seq.* No. 145, 247. No. 147, 249. No. 148, 195n, 250, 360. No. 149, 463-4. No. 150, Bomber operations, 331-2; in North-West African Strategic Air Force, 562n. No. 151, 518, 519. No. 156, 600. No. 159, 249, 250. No. 165, 511. No. 169, 432. No. 172, Biscay operations, 283, 287, 290, 421. No. 174, 350. No. 175, 550. No. 178, 563. No. 179, 413, 421, 620. No. 185, 228, 251, 362. No. 200, 287. No. 201, 155, 629. No. 202, 277; operations from Gibraltar, 29, 30, 285, 294, 410 *et seq.* No. 203, in Mediterranean operations, 85, 237, 239, 358. No. 204, 14. No. 206, in battle of Atlantic, 50, 152, 154, 159, 415, 621. No. 207, in Bomber operations, 179, 310-1, 655. No. 208, 58, 59, 66, 391; in Western Desert, 64, 68, 198, in Syrian campaign, 88n, 92. No. 209, 265; in Atlantic, 162, in Indian Ocean, 356. No. 210, 7; in battle of Atlantic, 6, 38, 41, 47; in Russia, 295 *et seq.*; in North-West African convoy operations, 410, 411. No. 211, in Greece, 78, 83, 85n. No. 213, 371. No. 214, 316, 328. No. 216, 236. No. 217, in battle of Atlantic, 43, 50; at Malta, 238, against Brest squadron, 266, 267. No. 220, 12, 265, 621. No. 221, 152; in Mediterranean operations, 358, 396 *et seq.*, 579. No. 223, 240n, 248, at Alamein, 363, 371. No. 224, 50, 152, 265; North Sea patrols, 11, 12; off Norway, 21; watch on Brest, 266-7. No. 226, 19, 20. No. 227, 289. No. 228 (Plate p. 431), 7, 25; in Mediterranean, 56; Biscay operations, 429, 436, 444. No. 229, in Mediterranean, 100, 195n, 362. No. 230, 219, 237, 382; in Mediterranean operations, 56, 84, 358. No. 233, in Norwegian campaign, 17; in North-West African campaign, 410, 412, 413; in battle of Atlantic, 422, 425, 427-8, 431, 435. No. 235, 265; patrols Dunkirk, 21; in Battle of Britain, 37; at Malta, 238; in battle of Atlantic, 294, 410. No. 236, 262, 265, 274. No. 237, 199n, 393. No. 238 (Plate p. 46), 36, 195n. No. 240, 285n. No. 242, Fighter operations, 137, 349, 350. No. 244, 356. No. 245, 20. No. 248, 152, 265; Biscay operations, 268, 294, 419, 633; North Sea operations, 280, to Malta, 289. No. 249, on Malta, 227, 228, 362. No. 250, 103, 104, 221n; in Syrian campaign, 87n; in Western Desert, 104 *et seq.*; in Second British Libyan campaign, 195n, 196, 206 *et seq.*, 210 *et seq.*; in Second German African campaign, 214 *et seq.*; Gazala line, 222; in Third German African campaign, 231 *et seq.*, 240 *et seq.*; Alamein, 364; in Sicilian campaign, 567. No. 252, 231, 238. No. 254, 265. No. 256, 573. No. 260, 221n; as No. 260/450 in Syrian campaign, 92, 94, 95; at Alamein, 365, 371, 376; in Sicilian campaign, 567, 575. No. 264, 519. No. 266, 131. No. 269, 150, 420, 622. No. 272, operations from Malta, 156, 238, 362, 363, 381. No. 274, 74, 221n. No. 279, 152. No. 295, 571. No. 296, 570-1. No. 320, 410. No. 500, 269, 412. No. 502, Biscay operations, 163, 287, 442. No. 514, 640. No. 540, 647. No. 541, 641. No. 601, 572. No. 602, Fighter operations, 133 *et seq.*, 341, 345, 346, 348. No. 608, off Norway, 265, 279; in North-West African campaign, 412. No. 610, 355. No. 611, 354, 509. No. 612, 624, 633. No. 616, 511. No. 617 (Plate p. 462), 591; attack on German dams, 492 *et seq.*

—FLIGHTS: No. 431, 56. No. 1437, 248, 564n.

—“X”, in Syrian campaign, 88n, 92.

—ADVANCED FLYING UNIT: No. 1 (Observer), 542.

—HEAVY CONVERSION UNIT: No. 1656, 450.

—OPERATIONAL RESEARCH SECTIONS: Bomber Command, on destructive power of bombs, 177;

BRITISH AIR FORCE—continued

- on technique of concentration of bomber stream, 309*n*. Coastal Command, compares efficiency Biscay operations with those round convoys, 422; finds solution to problem of depth-charge dropping, 426-7
- OPERATIONAL TRAINING UNITS: No. 6, 152. No. 10, 292, 550; in battle of Atlantic, 439. No. 11, 111, 549, 550. No. 12, 550, 551. No. 13, 550. No. 14, 550. No. 15, 548, 550, 551. No. 16, 550. No. 19, 550. No. 21, 551. No. 22, 549, 550. No. 23, 549, 550. No. 24, 328, 550. No. 26, 550. No. 27, 302, 547, 549, 550, 551*n*, 554; supplies crews for Australian squadrons, 479. No. 29, 550, 554. No. 30, 111. No. 51, 304. No. 56, 111. No. 60, 145. No. 71, 197
- PERSONNEL RECEPTION CENTRE: No. 3, 111, 114, 120, 124, 127, 303, 524, 527, 529*n*; Australians at, 112, 115, 118, 124, 125
- PHOTOGRAPHIC RECONNAISSANCE UNIT: 31, 32, 36, 38, 154, 268, 274, 295-7, 641, 647; transferred to Coastal Command, 32; also known as No. 2 Camouflage Unit, then Photographic Development Unit
- ROYAL AIR FORCE REGIMENT: 363
- UNITS: "H", in Sudan, 52. No. 103 Maintenance, 99. No. 61 Rear Servicing, 408. No. 214 Maintenance, 527. Royal Air Force Film, 661. Royal Air Force Experimental Establishment, 39. Royal Air Force Reception Centre, 109, 110. No. 3 School of General Reconnaissance, 111. Flying Boat Training School, 6. Bomber Command Photographic Interpretation Unit, 32. Middle East Pool, 95, 103
- BRITISH ARMY**, compared German, 23; in Middle East, against Italians in Western Desert, 55, 69, inadequate resources of, 76, 220, primary task of, 193, in battle of Alamein, 356-7, 375 *et seq.*, and German army, 366*n*, 385; in Greece, 78; in North-West African campaign, 380
- WAR OFFICE, 57*n*, 174*n*
- ARMY COUNCIL, 76
- ARMY GROUPS (ANGLO-AMERICAN), No. 15, 560. No. 18, 388, 409. No. 21, 586*n*
- ARMIES: First, 387; in North-West African campaign, 379 *et seq.*, 412; in Tunisian campaign, 409. Eighth, 95, 214, 215, 253, 382, 387, 388, 391, 563; problems of, 1941, 193; in Second British Libyan campaign, 197, 199 *et seq.*; in Second German African campaign, 214 *et seq.*; at Gazala line, 220; in Third German African campaign, 232, 236, 240, 241, 244, 246; at Alamein line, 246-7, 251, 253-5, 256-7, 358, 362, 364; in Battle of Alamein, 368 *et seq.*, 375, 377; in Tripolitanian campaign, 383-4, 385, 400-1; in Tunisian campaign, 388, 401 *et seq.*, 406 *et seq.*; in Sicilian campaign, 562, 570, 574, 577. Ninth, 392
- FORCES: British Expeditionary Force, advance into Belgium, 18, at Dunkirk, 20; evacuates, 32. Western Desert Force, 60*n*, 68, 100*n*; in First British Libyan campaign, 59, 60, 62, 64, 67; in Operation "Battleaxe", 104. Habbforce, in Syrian campaign, 92, 93, 95*n*
- CORPS: X, 244. XIII, 68, 100*n*, 198; in Second British Libyan campaign, 199 *et seq.*, 204 *et seq.*, 208 *et seq.*, 213; in Second German campaign, 214-5; in Alamein line, 246; in Sicilian campaign, 562, 573 *et seq.* XXX, in Second British Libyan campaign, 198 *et seq.*, 202, 204, 207, 209, 223; in Tunisian campaign, 404; in Sicilian campaign, 562, 575
- DIVISIONS, ARMoured: 1st, in Second German African campaign, 214; at battle of Alamein, 370, 374; in Tunisian campaign, 405. 2nd, in First German African campaign, 72, 73. 7th, 100*n*; in First British Libyan campaign, 60, 63, 65, 68; in Second British Libyan campaign, 200, 205; in Third German African campaign, 232; at battle of Alamein, 371. 10th, at battle of Alamein, 370
- DIVISIONS, INFANTRY: 1st, 566, 6th, in Syrian campaign, 92, 93, 51st, 370, 78th, 575
- BRIGADES, ARMoured: 2nd, 240, in Second British Libyan campaign, 199, 207 *et seq.*; in Third German campaign, 240. 7th, 199, 200. 9th, 374. 22nd, in Second British Libyan campaign, 200, 210; in Third German African campaign, 240. 7th Support Group, 200

BRITISH ARMY—continued

- BRIGADE, AIRLANDING: 571
- REGIMENT, ARMoured: 11th Hussars, 66
- REGIMENT, INFANTRY: Coldstream Guards, 106
- AIR INTELLIGENCE LIAISON SECTION: 200th, 100*n*
- BRITISH COMMONWEALTH AIR TRAINING PLAN; see** EMPIRE AIR TRAINING SCHEME
- BRITISH COMMONWEALTH OF NATIONS**, 33, forces of, in Greece, 79, 85, air force, 523*n*
- BRITISH NAVY**: 37, 148*n*, 174*n*; in battle of Atlantic, Atlantic convoys, 39, 264, 414, 427, anti-submarine weapons, 41, 147, 269; and Brest squadron, 49, 268*n*, sinks Italian submarines, 148*n*, War Cabinet grants first priority to, 178, operation against German blockade runners, 627; in the Bay of Biscay, submarines of, 42-3, 155*n*, hunt for German tanker, 166-7, importance, 415, sends escort groups, 441, driven from, by German glider bombs, 444, 619; and Bomber Command, its calls on, 51, 311, 334, 465, 470-1, presses for attacks on Biscay ports, 415, 472, its objections to jamming of German radio-telephones by, 585*n*; stops passage of liners through Red Sea, 57; and Fighter Command, 521
- MEDITERRANEAN FLEET, 55, leaves Malta, 52, 222; in First British Libyan campaign, 60, losses, 178, 226, 239; in supply war, 256, 261, 358, 373; in Sicilian campaign, 566. 15th Cruiser Squadron, in Syrian campaign, 89, 91
- HOME FLEET, 150, 615, 621*n*; in *Bismarck* action, 155
- VICE-ADMIRAL, DOVER, 609
- ADMIRALTY ASSESSMENT COMMITTEE, 429*n*
- ESCORT GROUPS: 1st, 432, 433. 2nd, Biscay operations, 442 *et seq.*, 620, 40th, 619
- FLEET AIR ARM, home-based, in Battle of Britain, 36; in sea war, 189-90, 269, 609; in the Mediterranean, Taranto success, 56; in Syrian campaign, 91, 93; in Second British Libyan campaign, 195*n*, 198; in Third German African campaign, 245, 249; in supply war, 255; in Sicilian campaign, 563; No. 812 Squadron, 398. No. 815 Squadron, 88*n*. No. 825 Squadron, 267
- BRITISH OVERSEAS AIRWAYS CORPORATION**, 164
- BRITTANY** (Map p. 13), 23
- BRITTINGHAM**, P-O R. A., 330, 333
- BRNO** (Czechoslovakia), 141
- Brooklesby*, British destroyer, 159
- BRONTE-RANAZZO ROAD** (Map p. 565), 577
- BROOKS**, F-Sgt H. G., 463
- BROTHERS**, W Cdr P. M., 131, 345, 348
- BROUGH**, Sqn Ldr J. F. P., 9
- BROWN**, P-O A. H. S., 289, 419
- BROWN**, F-O E. H., 350
- BROWN**, AVM Sir Leslie, 64*n*, 88, 89
- BROWN**, Sqn Ldr T., 276, 286, 288
- BRUCE**, Rt Hon Viscount (Plate p. 526), 4, 109, 118-9, 528, 555*n*; and the Empire Air Training Scheme, 2, 108, 110
- BRUCE**, W Cdr A., 12, 17
- BRUGES** (Map p. 318), 458
- BRUNEVAL** (France), 582
- BRUNSBUTTEL** (Maps pp. 318, 657), 9
- BRUNSWICK** (Map p. 318), attacked, 644, 655, 658
- BRUSSELS** (Maps pp. 318, 342), 141, 142
- BRYUS-SUD AIRFIELD** (Map p. 504), 514
- BU AMUD** (Map p. 212), 200
- BUCKHAM**, F-O B. A., Plate p. 638
- BUCKLAND**, P-O G. G., 231
- BUERAT EL HSUN** (Map p. 399), 382, 383; German line at, 400, 401
- BULGARIA** (Map p. 81), 76; and Germany, 78, 79
- "BULLSEYE" EXERCISE, 340
- BULS**, F-Lt B. L., 288, 290
- BUNCE**, F-Lt F. H., 634
- BUNGEY**, W Cdr R. W. (Plate p. 142), in Bomber Command, 19; in Fighter Command, 130, 138, 143, 341, estimate of, 139
- BUQ BUQ** (Maps pp. 61, 233), 73, 362, 372
- BURCHER**, F-Lt C. W., 424-5, 427, 432, 439, 623
- BURCHER**, F-Lt G. M., 642
- BURG EL ARAB AIRFIELD** (Maps pp. 61, 233), 53*n*, 95, 237, 239; No. 450 Squadron to, 218; No. 1 Air Ambulance Unit to, 248
- BURG EL ARAB-ALAMEIN ROAD** (Map p. 233), 260
- BURKE**, P-O R. W., 646

- BURLEIGH, Sgt H. K., 625
 BURMA, 238*n*, 243*n*
 BURNETT, Air Chief Marshal Sir Charles, 7, 96, 109, 112
 BURNEY, P-O H. G., 201, 209, 216, 217*n*
 BURNHAM, F-Sgt J. S., 438
 BURRAGE, Gp Capt R. B., 163, 164-5, 166, 276, 285
 BURROWS, Sgt H., Plate p. 639
Busiris, British merchantman, 50
 BUTCHER, Sgt C. S., 289
- Cabendas*, British merchantman, 16
 CABLE, F-Lt W. O., 207, 232
Cachalot, British submarine, 42*n*
 CAEN (Maps pp. 318, 504), attacked, 346, 459, 507
 CAEN AIRFIELD, attacked, 458, 509, 511*n*
 CAFFYN, F-O M. C., 606
 CAIRO (Maps pp. 58, 258), 7, 79, 122, 123, 156, 164, 220, 250, 363, 387, 390, 535, 538, 558, 567; conference of 1921, 52; air defence of 1940, 55
 CALABRIA (Map p. 565), 577, 578, 579*n*
 CALAIS (Maps pp. 13, 318, 342), 37, 133, 346, 509, 511; attacked, 188, 507
 CALAIS, PAS DE (Map p. 504), 508, 513
 CALATO AIRFIELD (Map p. 81), 84
 CALDWELL, Gp Capt C. R., 104, 106, 197*n*, 206, 209, 214, 218, 225; combat reports, 105, 207; estimate of, 105, tests Kittyhawk bomber, 222
Calpe, British destroyer, 351
 CALSHOT; see BRITISH AIR FORCE, STATIONS
 CAMERON, F-Lt A. C. (Plate p. 78), 106, 205, 206, 208, 213; combat report, 211
 CAMPAGNE (Map p. 342), 348
 CAMPBELL, F-O C. A., 646
 CAMPBELL, Sqn Ldr D., 71, 72
 CAMPBELL, W Cdr I. L., 237, 360, 395
 CAMPBELL, F-O J. C., 67
 CAMPBELL, F-O K. G., 641
 CAMPBELL, F-Lt K. S., 360
 CAMPOLATO, CAPE (Map p. 565), 576
 CANADA (Map p. 270), 41, 114, 115*n*, 117, 264, 303, 395, 452, 454, 455, 538, 543, 552, 615; in Empire Air Training Scheme, 2, 107, 109, 524, 530*n*, 531 *et seq.*, Australians with, 107, 109; part in negotiations to retain No. 10 Squadron in Britain, 262; U-boat activity off, 263
 CANADIAN AIR FORCE, 131, 302*n*, 479*n*, 528; and Empire Scheme graduates with Royal Air Force, 4*n*, 110*n*, 529-30, 531, 532-3, 549, 551; in battle of Atlantic, 414; in North-West African Strategic Air Force, 562*n*
 —COMMAND: *Eastern Air* (in western Atlantic), 432
 —OVERSEAS HEADQUARTERS, 532-3
 —GROUP, No. 6, in Bomber Command, 454
 —STATIONS: Macleod, 126. Moncton, 127. Uplands (Plate p. 111), 107
 —SERVICE FLYING TRAINING SCHOOLS: No. 2, 107. No. 7, 126. No. 8, 127
 —SQUADRONS: No. 407, 429; in St Nazaire raid, 274. No. 408, 301. No. 415, 288; in North-West African campaign, 410
 CANADIAN ARMY, 1st Division in Sicily campaign, 575
 CANADIAN NAVY, shares with British, north Atlantic convoy escort tasks, 414; in Biscay operations, 619
 CANAL ZONE (Map p. 58), 77, 218
 CANARY ISLANDS (Map p. 270), 427
 CANDY, Air Cmdre C. D., 152
 CANTERBURY (Map p. 342), 339*n*, 353
Canton, British merchantman, 25
 CAPE VERDE ISLANDS (Map p. 270), 287
 CAPRI (Map p. 565), 397
 CAPRONI FACTORY, 465
 CAPUZZO (Maps pp. 61, 203), 63, 86, 104, 199, 201, 204, 361, 378
 CAPUZZO, TRIGH (Map p. 212), 104, 199, 200, 201, 202
 CARDIGAN BAY (Map p. 342), 339
Cardonia, German merchantman, 367
 CARIBBEAN SEA, 263, 287
 CARLENTINI (Map p. 565), 573
 CARMICHAEL, F-Lt R., 602
 CARRICK, F-Lt G., 371
 CARSON, F-Lt K. F., 200, 218
 CASABLANCA (Map p. 412), 29, 379, 409, 411
 CASABLANCA CONFERENCE, 387, 499, 502; strategical decisions at, 386, 475, battle of Atlantic, 420, 470-1, on enemy in Africa, 406, in Sicily, CASABLANCA CONFERENCE—continued
 560, combined bomber offensive, 475; naval and air forces fulfil task allotted by, in Atlantic, 627-8
 CASEY, Rt Hon R. G., 108
 CASHMORE, Sqn Ldr V., 248
 CASQUETTE LIGHT (Map p. 504), 511
 CASSEL (Map p. 132), 131
 CASTEL BENITO AIRFIELD (Map p. 399), 62*n*; 3 and 450 Squadrons at, 401
 CASTELVETRANO AIRFIELD (Map p. 565; Plate p. 238), 566
 CASTLE CAMPS; see BRITISH AIR FORCE, STATIONS
 CASUALTY NOTIFICATION, origin of, at Overseas Headquarters, 525-6
 CATANIA (Maps pp. 258, 399), 561, 572, 574, 575, 577
 CATANIA AIRFIELD (Map p. 565), 562, 574; attacked, 575
 CATE, J. L. (and W. F. Craven), 238*n*, 407*n*, 511*n*
 CATENANOVA (Map p. 565), 573, 575
 CAUCASUS, 193, 238*n*, 250
 "CAULDRON, THE" (Map p. 233), 235, 236
 CAULNES (Map p. 504), 517, 520
 CAVALLERO, Marshal, 259
 CEKHIRA (Map p. 399), 406
 CENTURPIE (Map p. 565), 575
 CERENCES (Map p. 504), 518
 CHAD, LAKE (Africa), 404
 CHAMBERLAIN, Rt Hon Neville, 171, 172
 CHANNEL, THE; see ENGLISH CHANNEL
 CHANNEL ISLANDS (Map p. 423), 511
 CHAPMAN, F-Lt C. O., 332
 CHAPMAN, Gp Capt D. R., 210; and 451 Squadron, 393, 394
 CHAPMAN, F-O J. F. D., Plate p. 638
 CHARING CROSS (Map p. 233), 244
 CHARLEROI (Map p. 318), 469
 CHARLOTTENBURG, Berlin suburb, 602
 CHARLTON, Sqn Ldr M., 273, 288, 442, 443
 CHARRUBA (Map p. 61), 73
 CHAULAN (Map p. 61), 67
 CHEDWORTH; see BRITISH AIR FORCE, STATIONS
 CHERBOURG (Maps pp. 13, 42, 504), 22, 151, 503, 508, 509, 609; attacked, 133, 187, 188, 458, 459
 CHILDRENS' OVERSEAS RECEPTION COMMITTEE, 41
 CHINA, 238*n*, 530*n*
 CHINCHEN, Sqn Ldr G. T., 240
 CHIPPINDALL, F-Lt L. D. H., 273
 CHISHOLM, F-Lt K. B. (Plate p. 142), 134, 135, 137*n*, 138; escapes, 140-2
 CHRISTENSEN, F-Lt L. J., 481
 CHURCHILL, Rt Hon Sir Winston, 172, 174, 176, 583; his views on war issues, 33; extolls "The Few", 35; on African campaigns, 65, 232; appeals to Turkey, 79; and battle of Atlantic, 416*n*; at Casablanca, 475; at Quebec, 580
 CHURCH OF ENGLAND, 538*n*
 CHURGIA (Map p. 399), 400
 CIANO, Count, 361*n*, 372*n*, 373*n*, 411*n*
 CILIAK, Vice-Admiral, 269
 CIRCUS, code name of Fighter Command operation, 129
 CISLAGO (Map p. 590), 592
 CITROEN FACTORY, 310
Citta Di Agrigento, Italian transport, 259*n*
City of Benares, British liner, 41
City of Flint, American merchantman, 12
City of Limerick, British merchantman, 28
 CLAIMS, destruction of enemy aircraft, xvi, 59*n*
Clan Ogilvy, British merchantman, 26
 CLARK, F-Lt C. C., 625
 CLARK, F-Lt J. E. L., 360
 CLARK, Sgt J. W., Plate p. 638
 CLARK, F-Lt W. R., xvii, 537*n*
 CLARKE, Sqn Ldr A. H. G., 613, 615
 CLARKE, F-Lt I. A. F. (Plate p. 431), 443-4
 CLARKE-HALL, F-Lt G. W., 398
 CLARKSON, F-O K. E., 572
Clearton, British merchantman, 26
 CLISBY, F-O L. R., 20
 CLOWRY, Sgt F., 103
 CLOWRY, W-O T. P., 103*n*
 CLYDE RIVER (Maps pp. 13, 278), 42, 409
 COATE, F-Lt E. E., 362, 381
 COBBLEDICK, F-Lt L. T., 633-4
 COCK, Sqn Ldr J. R., 36
 COD, CAPE (Map p. 270), 414

- CODDINGTON; *see* BRITISH AIR FORCE, STATIONS
 COHEN, Gp Capt J. A., 6, 16, 22, 26, 28, 48; flies mission to French Morocco, 24
 COKER, F-Lt F. A., 341, 344
 COLDHAM, F-Lt P. A., 600
 COLE, AvM A. T., 237; on Dieppe raid, 351
 COLEMAN, Maj P. E., Plate p. 526
 COLERNE; *see* BRITISH AIR FORCE, STATIONS
 COLLEVILLE (Maps pp. 318, 342), 341
 COLOGNE (Maps pp. 318, 480; Plate p. 494), 325, 326, 327, 332, 335, 481, 489, 602; listed for major attack, spring 1942, 299; attacked, 1941, 135, 183, 184, 185, 190, 1942, 320-2, 585, 1943, 467-8, 491-2
 COLOGNE CATHEDRAL, Plate p. 494
 COLOGNE-GEREON MARSHALLING YARDS (Plate p. 494), 176*n*
 COLOGNE-KALK NORD MARSHALLING YARDS (Map p. 480), 176*n*
 COLTSHALL; *see* BRITISH AIR FORCE, STATIONS
 COMANS, Sqn Ldr J. L. V., 649
 COMBINED CHIEFS OF STAFF (ANGLO-AMERICAN), 385
 COMBOURG (Map p. 504), 517
 COMISO AIRFIELD (Map p. 565), 561, 566
 COMMANDO RAIDS, against Tobruk, 259
 "COMPASS" OPERATION, 64*n*
 COMPUTER, DALTON NAVIGATION, 554
 CONCHES AIRFIELD (Map p. 504), 514
 CONFERENCES; *see* CASABLANCA CONFERENCE; EMPIRE AIR TRAINING SCHEME; QUEBEC CONFERENCE
 CONNINGHAM, Air Marshal Sir Arthur, 8, 364, 369, 377; on 450 Squadron, 225; use of aircraft transport by, 383; on Western Desert air force, 384
 CONNOLLY, F-Lt J. T., 572
 CONSIDINE, P-O, Plate p. 46
 CONSTANTINE (Map p. 399), 381
 CONVOYS, Atlantic, 619; threat from U-boats, 148; air patrol tactics, 148; under attack, 1942, 284; system, 414; designations of, 414; air and sea protection, 1942, 414-15; Germans plan 1943 offensive against, 420; uncertain future, 424; under heavy attack, 1943, 424-5, 426, 432, 622, 624*n*; and Coastal Command, 432; slow convoys speeded up, 433*n*; particular convoys, *HX-217*, 415; *HX-237*, 432; *ON-202*, 621; *ON-206*, 623; *ONS-5*, 432; *ONS-18*, 621; *ONS-20*, 623; last convoy under heavy submarine attack, 624*n*; *SC-111*, 415; *SC-129*, 432; *SC-130*, 433-4; *SC-143*, 623. Malta, 224, 227, 236-9, 240*n*, 284-5, 289, 377, 381. (*See also* BRITISH AIR FORCE, MIDDLE EAST COMMAND; MALTA). North-West African, 409, 411, 417, 421, 427-8. Russian, 280, 295 *et seq*; particular convoys, *PQ-17*, 356; *PQ-18*, 295 *et seq*; *QP-14*, 295. *Sierra Leone*, 47, 162, 276. *Trinidad-Gibraltar*, 420
 COOKE, W Cdr H. G., 293, 418
 COOPER, Cpl, Plate p. 335
 COPENHAGEN (Map p. 278), 460
 CORCORAN, F-Lt L. G., 156
 CORFU (Map p. 81), 84, 260, 358
 CORKRAN, F-Lt T. J., 280-1
 "CORKSCREW" OPERATION; *see* PANTELLERIA, capture of
 CORMACK, F-Lt D. J., 235
 CORNWALL, 274, 292, 440, 511, 513
 CORRIE, F-Lt R. M., 285
 CORSER, Sqn Ldr E. G. M., 649
 CORSICA (Maps pp. 258, 412), 560, 579
 Cortellazzo, Italian merchantman, 418
 COSTELLO, W Cdr J. F., 45, 155, 165, 166, 167
 COTTON, W Cdr F. S., 30-2
 COURTNEY, Gp Capt E. B., 25, 27
 COURTRAI (Map p. 318), attacked, 508, 660
 COURTRAI-WEVELGHEM AIRFIELD (Map p. 504), 351*n*; attacked, 505
 COVENTRY (Map p. 13), 50
 COWAN, F-Lt R. J., 140
 COWARD, Sqn Ldr G. C., 104, 209
 COWPER, Sqn Ldr R. B., 572
 CRACOW (Poland), 141
 CRAINE, F-O A. R., 622, 623
 CRAVEN, W. F. (and J. L. Cate), 238*n*, 407*n*, 511*n*
 CREAUGH, F-Lt S. C., 355
 CRECY, FORET DE (Map p. 504), 510
 CREDITON (Map p. 504), 518
 CRETE (Maps pp. 81, 258), 76, 85, 95, 96, 156, 210, 231, 236, 247, 248, 255, 256, 363, 373, 376, 395, 568; British on, 77, 78; campaign in, 85-6, effect of British Air losses in, 196*n*; air attacks on, 238, 579; German occupation army, 259*n*; German air force on, 386
 CREW COMPOSITION; *see* BRITISH AIR FORCE, COMMANDS
 CROFT, F-O C. R., 618
 CROFT, Sgt K. N. J., Plate p. 639
 "CRUSADER" OPERATION; *see* AFRICAN CAMPAIGNS
 CULLEN, F-Lt R. N., 83, 84
 CUNDY, F-Lt W. R., 365, 371, 373, 376
 CUNNINGHAM, Admiral of the Fleet Viscount, 84*n*
 CURCHIN, F-Lt J., 36
 CURNOW, F-Lt C. D., 408
 CURNOW, Gp Capt T. C., 50, 152
 CURTIN, Rt Hon J., 262, 528, 558
 CUXHAVEN (Map p. 318), 315
 CYPRUS (Maps pp. 90, 258), 54, 91, 93, 95, 104, 193, 250, 357, 392, 568; air defence of in Syrian campaign, 88
 CYRENAICA (Maps pp. 61, 212), 69, 76, 86, 101, 104, 106, 156, 193, 196, 199, 207, 214, 215, 216, 220, 230, 236, 252, 253, 256, 380, 568; British conquest of, 68; inadequate RAF strength in, 71; German occupation of, 72, British forces severely reduced for Greek campaign, 79
 CZECHOSLOVAKIA (Map p. 318), 486; under German rule, 141; Bomber Command operations over, 497-8; at May 1942 air training conference, 530
 CZECHOSLOVAKIAN AIR FORCE, 274*n*
 DABA, EL (Map p. 233), 244, 246, 247, 254, 259, 379, 402
 DABA AIRFIELD (Map p. 61), 365, 369, 374, 375, 376; built under 1936 Treaty, 53*n*; 3 and 450 Squadrons at, 244
 DAIMLER BENZ FACTORIES (Stuttgart), 329
 DAKAR (Map p. 270), 88, 379, 411
 D'ALBIAC, Air Marshal Sir John, 85; commands British Air Force in Greece, 77, 78, 82*n*, 83; during battle of Matapan, 84
 DALBY, Sgt B. R., Plate p. 622
 DALMATIAN COAST, 289
 DALTON, F-O K. R., 427-8, 435
 DAMASCUS (Maps pp. 90, 258), 88, 91, 92, 95*n*; airfield at, 87, 93, 104
 DAMOUR (Map p. 90), 91, 93
 DAMS, GERMAN, Bomber Command attacks on, 492-5
 DAVENPORT, W Cdr J. N., 612, 613, 614, 617
 DAVENPORT, Sqn Ldr P. R., 618
 DAVIDSON, F-Lt H. J., 572-3
 DAVIDSON, F-O J. McD., Plate p. 46
 DAVIES, Padre R. E., Plate p. 430
 DAWSON, Cpl W. E., Plate p. 591
 DEAL (Map p. 342), 346, 353
 DEBDEN; *see* BRITISH AIR FORCE, STATIONS
 DEBEUA RIDGE (Map p. 212), 199
 DECIMONANNU AIRFIELD (Map p. 412), 289
 DE COSIER, P-O M. H. L., 354
 DE GATA, CAPE (Map p. 412), 29
 DE GAULLE, Gen Charles, 23, 88
 DEIR ALINDA (Maps pp. 233, 369), 246
 DEIR EL ABYAD (Map p. 233), 247*n*
 DEIR EL MIRIER (Map p. 233), 246, 253, 254
 DEIR EL MUNASSIB (Map p. 233), 256
 DEIR EL QATTARA (Map p. 233), 369
 DEIR EL SHEIN (Map p. 233), 245, 246, 247
 DE LA RUE, Air Cmdr H. F., 1, 109, 112
 DELMENHORST (Map p. 318), 317
 Delos, German merchantman, 259*n*
 DELTA; *see* NILE DELTA
 DENMARK, 35, 77, 172, 190, 299, 312; Germans invade, 17; British air operations, 310, 460, 616
 DENMARK STRAIT (Map p. 270), 155, 156
 DENTZ, Gen Henri, 87
 DEPTH CHARGES, AERIAL, 21, 150, 155, 271, 274, 286, 426-7
 DERAA (Map p. 90), 88, 91
 "DERANG" OPERATION; *see* BRITISH AIR FORCE, COASTAL COMMAND
 DERNÄ (Maps pp. 61, 233), 56, 67, 72, 209, 215, 216, 261, 359; airfield at, 64, 65, 231
 DESCHIMAG WORKS (Bremen), 284*n*
 DESSAU (Map p. 318), 654
 DESTÉ, F-O J. G. R., 47
 DESVRES (Maps pp. 132, 342), 138, 346, 347

- DEUTSCHE WERKE SHIPYARDS (Wilhelmshaven), 320**
Deutschland, German "pocket-battleship", 12; *see also* *Lutzow*
DEVENISH-MEARES, P-O R., 167
DIBBS, Gp Capt J. Owen, 21
DIEMEL DAM (Map p. 318), 493
DIEPPE (Maps pp. 132, 342), raid on, 350-1, 354
DILL, Field Marshal Sir John, 46, 79
Dilwarra, British transport, 57
DILWORTH, W Cdr J. F., 450, 470
DIREDAWA (Map p. 357), 56
DISCIPLINE, in R.A.F., 98, 115, 125, 491, 538
DIX, F-Lt R. W., 620
DIXON, Sqn Ldr D. C., 461
DJEM, EL (Map p. 399), 406
DOBSON, F-Lt J. S. B., 625
DODECANESE ISLANDS (Map p. 81), 79, 86, 95, 248; attacks on 81, 84
DODS, F-Lt W. S. E., 418, 434
DOENITZ, Grand Admiral Karl, 409, 410, 411, 416n, 425, 431, 438, 439, 560, 576n, 622n; U-boat employment, 411n, 414, 424n, 430, 434, 436, 444, 617, 624n, 628; commands German Navy, 420; on defence of Sicily, 577; authorises use of radar decoy balloon to simulate U-boat response, 585n; obtains air support for U-boats, 619
DOL (Map p. 504), 517
DOLDEN, F-Lt R., 567
DOMINION HOSPITALITY SCHEME, success of, 125n
DON RIVER, 391
DORNIER AIRCRAFT FACTORY (Flushing), 509
DORTMUND (Maps pp. 318, 480), attacked, 324, 326, 333, 485-6
DORTMUND-EMS CANAL (Maps pp. 318, 480), 485; attacked, 37
DOUBLEDAY, W Cdr A. W., 649
DOUGLAS, Marshal of RAF Lord, 387, 388, 394, 502
DOUGLAS, W Cdr A. G., 130, 136, 137, 138; estimate of, 139
DOUGLAS, W Cdr D. L. G., 271, 421
DOUHET, General, 9
DOVER (Maps pp. 13, 318), 34, 142, 464
DOVER, STRAIT OF (Map p. 318), 190, 265, 266, 320, 609; forced by Brest squadron, 267
DOWLING, F-O W. J., 440, 618
DOWNES, Sgt D. F. R., Plate p. 143
DREM; see BRITISH AIR FORCE, STATIONS
DRIFFIELD; see BRITISH AIR FORCE, STATIONS
DRUMMOND, Air Marshal Sir Peter, 8, 52, 123; on Australian Liaison staff at Cairo, 390
DUDA, Ed (Map p. 212), 205, 206
DUELINGER IRON WORKS (Saarbrücken), 330
DUFF, Sqn Ldr B. B. E., 56
DUFF COOPER, Rt Hon Sir Alfred, 24
DUFFIELD, F-Lt A. J. R., 248
DUFFIELD, P-O G. L., Plate p. 270
DUISBURG (Maps pp. 318, 480), 485; attacked, 299, 325, 326-7, 467, 483-4; marshalling yards at, 176n; flood damaged by breached dams, 495
DUNCAN, Gp Capt W. J., 120, 363, 375, 390, 393, 569, 570; estimate of, 390
DUNGENESS (Maps pp. 132, 342), 138, 144, 341, 345, 508
DUNKIRK (Maps pp. 13, 132, 342), 19, 20, 21, 22, 131, 347, 348, 352, 409, 506; evacuation of, 23; attacked, 187, 347, 458, 505
DUNSTAN, Sgt B. P., 138, 143
DURAZZO (Maps pp. 81, 258), 78
DURBAN, 117
DUREN (Map p. 318), 606
DUSSELDORF (Maps pp. 318, 480; Plate p. 303), 176n, 326, 485, 489, 602; attacked, 185, 299, 327-9, 467, 489-90, 644
DUTTON, W Cdr R. G., 130
DWYER, Gp Capt M. H., 516, 517, 518
Engle, British aircraft carrier, 227
EAST, Sqn Ldr V. (Plate p. 46), 98
EASTBOURNE (Map p. 504), 510
EAST FORTUNE; see BRITISH AIR FORCE, STATIONS
EAST RIDING (Yorkshire), 180, 181
EATON, Gp Capt B. A., 567, 576
ECCLESTON, P-O H. S., 572
ECCLETON, F-O W. D., 134, 137n
EDEN, Rt Hon Anthony, 46, 87; mission to Greece, 79
EDER DAM (Map p. 318), attacked, 493, 494, 599
EDINBURGH (Maps pp. 132, 342), 337
EDWARDS, F-Lt A. M., 73
EDWARDS, Gp Capt H. I., VC (Plate p. 622), 192, 457, 460
EDWARDS, Sqn Ldr W. H., 17, 18
EGAN F-Lt A. A., 287
EGERO ISLAND (Map p. 278), 280, 612, 613, 614, 616, 617
EGERSUND (Map p. 278), 613
EGERTON, Sqn Ldr T. A., 283-4, 293, 418, 421, 629
EGGLESTON, W., 267n, 268n
EGLINTON; see BRITISH AIR FORCE, STATIONS
EGMOND-ON-SEA (Map p. 318), 480
Egret, British sloop, 619
EGYPT, 7, 52, 60, 70, 74, 85, 88, 92, 96, 193, 196, 206, 216, 219, 227, 238, 252, 255, 356, 358, 367, 382, 391, 392, 393, 403, 579; Anglo-Egyptian Treaty, 1936, 53; British preparations for Italian war in, 54; air defence, 55; invaded by Italians, 56, cleared, 63; Germans at frontier, 72, 73; fails to declare war on Italy, 77; stand at Tobruk saves, 86; German air force in, reinforced, 361; cleared of Germans, 375
EGYPTIAN-CYRENAICAN FRONTIER (Map p. 61), 56
EHRHARDT AND SCHMER FACTORY (Saarbrücken), 330
EINDHOVEN (Map p. 318; Plate p. 334), 353; attacked 456-7, 460, 461
EIRE (Map p. 13), 28
EISENHOWER, Gen of Army D. D., 385, 386, 388
416n, 561, 565; and Sicilian campaign, 406, 570
ELBA ISLAND (Map p. 412), 579
ELBE RIVER (Maps pp. 318, 656), 314; estuary, 268, 610
ELBERFELD (Map p. 480), 488-9
Elbing-CLASS, German destroyers, 626, 627
ELEUSIS AIRFIELD (Map p. 81), 77, 78, 82, 83, 85
ELFORD, R. E., 2
ELLIOT, F-Lt J. H., 238, 398
ELMAS AIRFIELD (Map p. 412), 289
ELPHICK, F-Lt J. R. H., 138, 142
Elsa Essberger, German merchantman, 271
EMDEN (Maps pp. 318, 656), 311, 612; listed for attack, 299; attacked, 51n, 187, 188, 317, 452, 605
EMERY, Sgt J. M., 142, 144
EMPIRE AIR TRAINING SCHEME (Plates pp. 110-1, 526, 622, 638), 57, 96, 139; benefits of long-term plan, 3; air gunner training, 3, 5, 532n, 553-4; pilot training, 3, 5, 117, 532n; observer/navigator training, 3, 5, 532n, 553, 554; training in Australia, 3, 5, 491, 553, 554; debt to instructors, 3; absorbs Australian air force effort, 4; Australian uniform retained, 4; formation of squadrons, 4, 110; recruiting, 5, 537n; conditions of service, 5, 15n, 110, 126, 127, 532-3, 537-8; planned output, 5; results of poor administration, 5, 110, 112-3, 123, 526, 527-8, 536 *et seq*; employment of graduates, 53, 103, 107, 108, 115, 117-8, 237, 479, 529, 552, 613; Australian segregation policy, 71, 363, 536-7; graduates attached to Australian permanent units, 71, 103, 271; Rhodesian-trained graduates for Middle East, 99n; Australia maintains schedule, 107, 112; aircrew training policy, 107, 539, 552; Australian drafts for Rhodesia and Canada, 107; Australian depot in Britain, 109; Australians with Royal Air Force, 110, 523; trainees' journey to Rhodesia, 112; ground crew problems, 113, 114, 450, 453-4, 535, 547, 556-7; conditions on sea journey to Britain, 117, 124; unbalance in supply of matched aircrew graduates, 118, 302, 539, 553; Australian confusion on status of trainees, 122n; ignorance of provisions of, in Middle East, 123, 390, 393-4; estimate 1941, 128; formation of Australian squadrons, 1941, 130-1, 144, 179, 180, 181, 219, 1942, 237, 275, 276, 301-2, 337, 360, 384, 450-1, 452, 1943, 478, 569-70, 636; Australia requests return of experienced graduates, 263; problem of flight engineers, 304-5; Australia has two squadrons withdrawn from Fighter Command, 337; morale, 392 *et seq*; efficiency of multi-national squadrons, 395; attitude of non-Australians with No. 462 Squadron, 408n; temporary cessation of Australian drafts, 451, 535; special case of air gunners, 490-1; South Africa remains outside, 524; concentration of Australians, 524, 526, 536n, 636; bomb aimer training, 532n; wireless-air gunner training,

EMPIRE AIR TRAINING SCHEME—*continued*

- 532*n*, 553; Australian position compared Canadian, 1942, 534; effect of Japanese war on, 535; repatriation problems, 555 *et seq*; success of, in meeting heavy casualties in Bomber Command, 663
- FIRST OTTAWA CONFERENCE, 1939, 2, 108
- RIVERSDALE AGREEMENTS, 107, 144*n*; conditions, 3-4; *Article XV* and formation of squadrons, 96 *et seq*, 108, 109, 112*n*, 114, 121, 144, 305; Australian depot, 109; Australian policy, 116, 179; titles of Australian squadrons disputed, 120 *et seq*
- MARCH 1941 CONFERENCE, 4, 5
- SUPPLEMENTARY AGREEMENT, APRIL, 1941, conditions, 110-1; reviews *Article XV*, 116, 118, 119, 144; on Australian depot, 529*n*; on ground staff, 536
- SUPPLEMENTARY AGREEMENT, OCTOBER 1941, Australians to Rhodesia, 112
- SECOND OTTAWA CONFERENCE, 1942, delegates, agenda, 530; training in Canada, 531-2; financial obligations, 532, 533*n*; Canada and control of airmen overseas, 532; on *Article XV*, on operational tours, 533; financial arrangements regarding permanent Australian squadrons overseas, 534
- JUNE 1942 AGREEMENT, 536, 540, 545*n*; financial provisions, 543-4; *Article XV* and Australia, 535
- MARCH 1943 AGREEMENT, provisions, 543 *et seq*; financial, 543; conditions of service, 543-4, 555, concentration of Australians, 544-5, 546; legal matters, 545, *Article XV*, 545
- EMS RIVER (Map p. 318), 37
- Enchantress, British sloop, 16
- "ENCLOSE" OPERATION: *see* BRITISH AIR FORCE, COASTAL COMMAND, Biscay operations 1943
- ENFIDAVILLE LINE (Map p. 399), 406, 408
- ENGLAND, *see* BRITAIN, GREAT
- ENGLISH CHANNEL (Maps pp. 13, 318), 20, 34, 130, 134, 136, 142, 186, 266, 345, 347, 351, 353, 464, 506, 512, 513, 598, 610; Brest squadron in, 267; Coastal Command operations in, 269, 612
- ENNERPE DAM (Map p. 480), 494
- Enterprise, British cruiser, 627
- ERLA FACTORY (Leipzig), 654
- ERLANGEN (Map p. 318), 497
- ERNE, LOCH (Map p. 13), 46, 49
- ESMONDE, Lt-Cdr E., VC, 267
- ESSEN (Maps pp. 318, 480; Plate p. 462), 299, 327, 335, 469, 485, 486, 661; attacked, 184, 322-6, 466-7, 479-83, 587, 660
- ESTACA, CAPE (Map p. 13), 520
- ETNA, MOUNT (Map p. 565), 574, 575, 576, 577
- EUPHRATES RIVER (Map p. 90), 93
- EUROPE, 124, 130, 173, 335, 349, 350, 483, 502, 503, 506, 507, 513, 535; British strategic role in, 193; invasion of, 420, 437-8, 475, 560, 580, 599
- EVANS, F-Sgt A. L., Plate p. 638
- EVANS, P-O D. F., Plate p. 143
- EVANS, F-Sgt R. J., Plate p. 639
- EVATT, Rt Hon H. V., 530
- EWINS, Sqn Ldr R. H. S., 512, 514
- EXETER (Map p. 342), 339*n*; *see also* BRITISH AIR FORCE, STATIONS
- Fabiano, Italian merchantman, 407
- FAEROE ISLANDS (Maps pp. 270, 278), 280, 294, 431
- FAEROES-ICELAND CHANNEL (Maps pp. 270, 282), 155
- FAEROES-SHETLAND CHANNEL (Maps pp. 278, 282), 616, 621
- FAHEY, F-O F. F., 450
- FAID (Map p. 399), 402
- FAIRBAIRN, Hon J. V., 122*n*; at Ottawa air training conference, 2
- FALKNER, F-Lt J. A., 316
- FALMOUTH (Map p. 13), 22
- FAMAGUSTA (Map p. 258), 250
- FAR EAST, 114, 119, 166, 263, 288; war in, effect on Middle East, 214, 220, 237
- FARMER, F-Lt E. H., 428
- FARNBOROUGH; *see* BRITISH AIR FORCE, STATIONS
- FARSUND (Map p. 278), 615
- Fascio, Italian merchantman, 260
- FAYID; *see* BRITISH AIR FORCE, STATIONS
- FAYLE, F-O E. A., 653
- F-BOATS, German supply vessels, attacked, 255
- FECAMP (Map p. 342), 344
- FELIXSTOWE; *see* BRITISH AIR FORCE, STATIONS
- FELTWELL; *see* BRITISH AIR FORCE, STATIONS
- FERGUSON, W Cdr A. D., 365
- FERGUSON, F-Lt J. H., 511, 512
- FERROL (Map p. 13), 159, 271, 284, 288
- FEUERBACH (Map p. 318), 659
- FIAT FACTORY (Turin), 463, 590
- FIELD, Sqn Ldr H. J., 155
- Field Service Regulations (Army), 57
- FIGHTER-BOMBER, in Western Desert, 222, 225*n*
- FINISTERRE, CAPE (Maps pp. 13, 153), 22, 40, 47, 156, 159, 166, 418, 609
- FINUCANE, W Cdr B. E. (Plate p. 142), 130, 131, 134, 136 *et seq*, 142, 341, 345; combat report, 135; estimate, 139-40; his impression of air fighting, 140
- FISCHER, Sqn Ldr F., 94, 199, 211
- FISHBURN, F-Lt W. H., 638
- FIVES FACTORY (Lille), 135, 505
- FKIRINE, DIEBEL (Map p. 399), 406
- FLANAGAN, W-O R. V., 253, 359
- FLARES, reconnaissance, used by Bomber Command, 309; sky-marker, 449; German fighter-type, *see* GERMAN AIR FORCE, TACTICS
- FLEMING, Lt-Col A. P., 205*n*
- FLENSBURG (Map p. 318), 647
- FLETCHER, F-Lt D. J., 155
- FLOOD, F-Lt F. W., 21, 37
- FLUSHING (Maps pp. 342, 504), 353, 508, 510
- FOCKE-WULF FACTORY (Bremen), 316
- FOGGIA AIRFIELDS (Map p. 565), 580
- FOKKER FACTORY (Amsterdam), 512
- FOLLIGNY (Map p. 504), 517, 518
- FOOT, Sqn Ldr H. D., 239
- FORAN, F-O M. T., 654
- FORBES, Rev A. E., 328*n*
- FORCE 141, Anglo-American planning staff for Sicilian campaign, 406
- FORD; *see* BRITISH AIR FORCE, STATIONS
- FORELANDS; *see* NORTH FORELAND
- Formidable, British aircraft carrier, 569
- FORSTER, F-Lt F. A., 306
- FORSYTH, Gp Capt D. T., 593; estimate, 649
- FORTH, FIRTH OF (Maps pp. 13, 342), 11, 349
- FOSKETT, Sqn Ldr R. G., 247, 257, 365, 374
- FOWLER, Sqn Ldr H. N., 20
- FOX, F-O B. L., 21
- FOYLE, LOCH (Map p. 13), 46
- FRANCE, 7, 77, 88, 130, 190, 213, 271, 299, 311, 348, 444, 464, 508, 591, 592, 595, 610, 661; and Bomber Command, its operations over, 1940-41, 19, 36, 51, 1942, 306, 308 *et seq*, 334, 1943, 458-9, 460, 468, 472 *et seq*, 500, 593, 607-8; plans attacks on French factories, 299, 310, forces Germans to withdraw air forces from, 581-2; battle for, Germans cross Meuse, 19, 172; armistice requested, 19, 23, resistance ceases, 22, 33, 173, Bomber Command in, 172-3; in 1939, joins Britain to guarantee Greece and Rumania, 76, fears German Air Force, 170; Vichy forces in Syria, 97; and Fighter Command, its operations over, 1941, 129, 131, 133 *et seq*, 142-3, 1942, 341 *et seq*, 348 *et seq*, 1943, 503, 505, 511 *et seq*, 516 *et seq*; underground movement in, assists airmen, 133; Germany builds bases in Biscay ports, 264*n*; and Great Britain, War Cabinet authorises attacks on French factories, 308; reaction in, to Renault raid, 309; attitude to North-West African campaign, 379; Germans enter unoccupied France, 380; compelled to send locomotives to Germany, 518; invasion of, impractical in 1943, 560, projected for 1944, 635
- FRANKFURT-ON-MAIN (Map p. 318), 495, 636, 639, 661-2; listed for attack, 176*n*, 299; attacked, 180, 183, 496, 596, 598-9, 651-2
- FRANKFURT-ON-ODER (Map p. 318), 646
- FRASER, F-Lt A. W., 415, 425, 439
- FRASER, F-Lt D. I., 397
- FREETH, F-Sgt J. S., 431, 614
- FREMANTLE, 7
- FRENCH, W Cdr D. J., 17, 179, 180, 183
- FRENCH AIR FORCE, 9, 22; in Mediterranean, 54
- FRENCH AIR FORCE, FREE, Lorraine Squadron in Second British Libyan campaign, 218*n*
- FRENCH ARMY, French Forces of Interior, 142, 213
- FRENCH ARMY, FREE, Legentilhomme's Division in Syrian campaign, 87, 88, 91; at Bir Hacheim, 235-6; Chad unit in Tunisia, 404
- FRENCH NAVY, Effect of loss on Britain, 23; watched

FRENCH NAVY—*continued*

during North-West African landings, 412
 FREUDENTAL (South-Eastern Germany), 141
Freyas; see RADAR, GERMAN
 FRIEDRICHSHAFEN (Map p. 318), attacked, 500, 599
 FRISIAN ISLANDS (Map p. 318), 593
 FRY, F-Lt C. H., 53, 56, 82 *et seq*
 FRY, F-Lt K. G., 443
 FUKA AIRFIELD (Maps pp. 61, 233), 53*n*, 246, 248, 365, 369, 371, 374, 375; escarpment near, 379
 FULLER, F-O L. G., 226
 FULLER, F-Lt R. O., 360
 FUSSELL, Cpl J. K., Plate p. 622

GABES (Maps pp. 399, 412), 382, 402 *et seq*; airfield at, 403

GABR SALEH (Maps pp. 203, 212), 199

GADEN, F-Lt C. B., 62, 63

GAFSA (Map p. 399), 403, 404, 406

GALE, F-O K. W., 397

GALLIPOLI CAMPAIGN, 52

GALLO, CAPE (Map p. 565), 407

GALWEY, F-Lt G. G., 353

GAMBUT AIRFIELDS (Maps pp. 61, 203, 212; Plate p. 399), 67, 106, 199, 201, 202, 216, 224, 231, 243, 375, 376, 398, 568; No. 3 Squadron to, 66, 215, 225; No. 450 Squadron to, 218; Western Desert fighters based at, early 1942, 221-2, importance of, to tradition, 241, remain at during Rommel's advance, 241; British ground-control radar at, 224; No. 1 Air Ambulance Unit to, 248; No. 459 Squadron at, 382, 395; No. 454 Squadron at, 395; living conditions, 1943, 395-6

GARDABIA AIRFIELD (Map p. 399), No. 462 Squadron at, 408

GARDNER, Sqn Ldr C. C., 602

GARET ED DOMA (Map p. 233), 243

GARING, Air Cmdr W. H. (Plate p. 14), 6, 16, 22, 23, 26, 27, 41; protects H.M.S. *Mooltan*, 29

GARSTADT (Map p. 318), 661

GASR EL ARID (Maps pp. 203, 212), 202, 205

GASTON, F-Lt B. F., 432, 442, 618

GATTENBY, F-Lt G. F., 519, 521

GATWARD, F-Lt A. A., 62, 63, 70

GAUSE, General, 259

GAZA AIRFIELD (Maps pp. 90, 258), 195; No. 1 Air Ambulance Unit at, 102

GAZALA (Map p. 203), 104, 206 *et seq*, 215, 218, 220, 221, 225, 230, 254, 366; airfields (Maps pp. 61, 212, 233), 56, 196, 198, 242, 375, 377, No. 3 Squadron to, 73, British ground-control radar at, 224, German fighters surprised at, 242

GAZALA LINE, 216; British stand at, 218, 232; air operations, 220 *et seq*; turned by Germans, 240

GAZALA-TOBRUK ROAD, 240

GDYNIA (Map p. 31), 334

"GEE"; see RADAR, BRITISH
 GELA (Map p. 565), 561, 570, 571, 574; airfield at, 561
 GELSENKIRCHEN (Map p. 480), 465; attacked, 487-8, 603

GENEIFA; see BRITISH AIR FORCE, STATIONS

GENEVA (Map p. 590), 526

GENEVILLIERS (Map p. 318), 309-10

GENOA (Maps pp. 31, 590), attacked, 19, 172, 462, 590

GENOA, GULF OF (Map p. 590), 499

GERAWLA AIRFIELD (Map p. 61), 56, 62, 63, 66; No. 3 Squadron at, 58

GERBINI AIRFIELD (Map p. 565), 562, 566

GERMAN AIR FORCE (Map p. 175; Plate p. 15), 17, 129, in Polish campaign, effect on Australia, 1; after Polish campaign, 9; against Great Britain, early attacks, 11, 171-2, begins shipping attacks, 25, Battle of Britain, 34 *et seq*, 40, mines Plymouth Sound, 44, operations, 1940-41, 144, 146, 336, effect of Russian campaign, 144, attacks Pembroke Dock, 158, mines Thames Estuary, 171, influence of German bombing on British policy, 173, operations, 1942, 338 *et seq*, 353, 355, 1943, 505, 508, 510, 511, 516, 518, 632, uses navigational beams, 446, 582-3; superiority in 1940, 18; in north-west Europe, 27, 133, British operations against, 1941, 131, 133 *et seq*, 142 *et seq*, receives FW-190 fighters, 143, strengthened for Brest squadron operations, 265, deploys, 1942, 299, British operations against, 1942, 311, 341 *et seq*, 348 *et seq*, fighter strength, 336, avoids combat,

GERMAN AIR FORCE—*continued*

343, in Dieppe raid, 351, British operations against, 1943, 459, 463, 464, 469, 473-4, 503, 505 *et seq*, 514, 515; tactics, in Battle of Britain, 35, fighter, in Mediterranean, 71, 106, 198, 200-1, 216, 224, 230, 364, bomber, 211, fighter, in western Europe, 343, 346, 348, 350, 352, 505, in Bay of Biscay, 439 *et seq*, night fighter, 597, 601; in battle of Atlantic, forces shipping from South-Western Approaches, 37-8, Atlantic patrols, 40, 436, provides long-range reconnaissance, 44, 46, 147, 425, 619, 622, its operations, 1941, 147, 156-7, 160, 165 *et seq*, role in escape of Brest squadron, 268*n*, its operations, 1942, 274, 276, 283, 285, 288, 289, 291-2, 294, 418-9, sinks sloop *Wild Swan*, 285, complacent regarding safety of Biscay U-boat bases, 416*n*, FW-190's interfere with Coastal Command fighter patrols, 419, its operations, 1943, 420, 434, 439 *et seq*, 519, 521, 618, 620, 624, 625, 633-4, forces British navy from Biscay with glider bombs, 444, 619; in eastern Europe, 146; in North Sea operations, 280; in air defence of Germany, technique, 312, 314-5, 326, 581-2, 595, 601, 644, its air operations over, 1942, 312 *et seq*, 316-7, 320, 322, 327-8, 330 *et seq*, 1943, 467, 469, 470, 472, 481 *et seq*, 487 *et seq*, 497-8, 588-9, 594 *et seq*, 600 *et seq*, 637 *et seq*, 651-2, 1944, 641 *et seq*, 652 *et seq*, 658 *et seq*, Kammhuber line, 320, 333, 581, 583, disposition, 320, 581, Cologne ground defences, 322, Ruhr ground defences, 324, 480 *et seq*, 489 *et seq*, effect of Mosquito, 460, night fighters, 581, 583-4, 595-6, 600, 638-9, 642, 646, 661-2, use of radar, 582, proportion of total defences in West, 582*n*, radio jamming war, 583 *et seq*, effect of bombing offensive on balance of, 663; in the Mediterranean, 356, 398, on Sicily, 69, 230*n*, 361, 362, 380, 386, 396, in Tripolitania, 69, 386, early African operations, 69, operations against Malta, 70*n*, 221-2, 225, 227, 229, 236, 251-2, in Greek campaign, 85, 86, against Crete, 85, situation, 1941, 86, in Syria, 87, in Crete, 95, 230*n*, 363, 367, 386, 391, has superior fighter, 100, in Second British Libyan campaign, 196, 198, 206, 207, 209, 211, 213, in Second German African campaign, 214, 216 *et seq*, at Gazala line, 223, 231*n*, plans, strength, 225, in Third German African campaign, 230 *et seq*, 240 *et seq*, in Greece, 230*n*, 386, in southern Europe, 230*n*, 386, losses of transport aircraft, 231, 407, at Alamein line, 246*n*, 254-5, 257, 260-1, 364-5, Mediterranean convoy operations, 289, in Egypt, 361, 363, flies army reinforcements to Africa, 367, in Battle of Alamein, 375 *et seq*, effect of occupation of southern France, 380, in North-West African campaign, 380, 396, 413, in Sardinia, 380, 386, estimate of, 385, in Tunisian campaign, 385, 396, 403 *et seq*, in Tripolitanian campaign, 400-1, in Sicilian campaign, 562, 570, 572, 573, 578; in Russia, 361; Allied plans against, 502; develops V.1 pilotless aircraft, 599*n*; effect on, of guarding Swedish iron-ore shipments, 611; in operations from Norway, 613, 614, 616; fighter strength, 650*n*; bombing of aircraft industry of, 650*n*, 654, 659, 661 —LUFTLOTES: No. 2, arrives in Sicily from Russia, 214, 225; its operations against Malta, 227 *et seq*, No. 3, 351*n*, No. 4, after Crete, 86 —FLIEGERKORPS: X, 214*n*; against Malta, 70*n*; in Cyrenaica, 80, 87; to Greece, 86, Tunis, 386*n*, *Fliegerführer I*, *Fliegerführer 3*, 386*n* —DIVISION, Hermann Goering, 574 —BRIGADE, Ramcke Paratroop, 256, 259, 367 —GROUP, KG100, 446 —AIR HISTORICAL BRANCH, 407*n*

GERMAN ARMY, 1; disposition, 17, 475*n*; in battle for France, 19, 23; in Africa, arrives, 70, in First German African campaign, 71, 76, thrust into Egypt, September 1941, 102, 106, in Second British Libyan campaign, 199 *et seq*, 205 *et seq*, 211 *et seq*, in Second German African campaign, 214 *et seq*, at Gazala line, 225, in Third German African campaign, 232 *et seq*, 240 *et seq*, at Alamein line, 246-7, 253 *et seq*, 256-7, 260-1, confident of victory, 252, reinforced from Balkans, 259*n*, on British command, 366*n*, disposition, 368, 384, 385, in battle of Alamein, 369 *et seq*, 375 *et seq*, in Tunisia, 380*n*, 385, in North-West African campaign, 379, in Tripolitanian campaign, 383-4,

GERMAN ARMY—continued

400-1, in Tunisian campaign, 402 *et seq.*, in Sicilian campaign, 573; invades Greece, 76, 84; threat to Caucasus, 250; develops V.2 rocket, 599*n*
—OBERKOMMANDO DER WEHRMACHT (OKW), 402, defined, 366
—OBERKOMMANDO DES HEERES (OKH), 366
—ARMY GROUP OF TUNIS, 402, 403
—PANZER ARMIES: Fifth, 385, 402*n*, 403*n*. Africa, in Third German African campaign, 220, 232, 245; at Alamein line, 247*n*, 253, 256, 257, 259, 261, 365, 366 *et seq.*; in battle of Alamein, 374, 379
—CORPS, Africa, 220*n*, 367; in First German African campaign, 70*n*, 72, 73; in Third German African campaign, 232, 236*n*, 240*n*, 241*n*, 243*n*, 246; at Alamein line, 246, 254*n*, 257, 260, 261
—DIVISIONS, PANZER; 10th, in Tunisia, 403, 405, 15th, to Libya, 70*n*; in Second British Libyan campaign, 199, 200; in Third German African campaign, 232*n*, 240, 243*n*; at Alamein line, 254, 366*n*; in battle of Alamein, 368, 371, 373, 378; in Tunisian campaign, 403; as 15th Panzer Grenadier, in Sicily, 574, 21st, in Second British Libyan campaign, 200; in Third German African campaign, 232*n*, 240, 241*n*, 242 *et seq.*; at Alamein line, 253; at battle of Alamein, 368, 370, 371, 373, 378, 379; in Tunisian campaign, 402, 403
—DIVISIONS, INFANTRY: 5th Light, 70*n*, 90th Light, in Third German African campaign, 232, 236, 240, 244; at Alamein line, 253; in battle of Alamein, 371, 373, 164th, 259, 367; at battle of Alamein, 373, 379
—UNITS: 3rd Reconnaissance Unit, 261; 33rd Reconnaissance, 261
—See also GERMAN AIR FORCE; SUPPLY
GERMAN NAVY, 170; war plans, 12; in Norwegian campaign, 17, in Battle of Britain, 36, 37; U-boat Britain's main enemy, 147; in battle of Atlantic, surface operations, 157, 159, 166-7, *Bismarck*, 154, 155-6, 505-6; Brest squadron, 157, 178, 192, operations in Biscay, 43, battle cruisers arrive, 49, attacked by Royal Air Force, 185, 186, passes up English Channel, 186-7, 265 *et seq.*; *Tirpitz* and *Graf Zeppelin* attacked by Bomber Command, 334; blockade running, 418, 626-7; anti-aircraft ships in Baltic, 49; in Mediterranean, 568; effect on of Bomber Command's mine-laying, 593; effort in guarding Swedish iron-ore trade, 611; operations in English Channel, 612; in Norwegian waters, 613, 616; introduces acoustic torpedo, 621; destroyer operations, Biscay, 633-4
—U-BOAT COMMAND: off West Africa, 47-8; in battle of Atlantic, 178, tactics, 12, 148*n*, 154*n*, 158, 284*n*, 414, 417, 629, 633, tactics against convoys, 39, 41, 621, 622-3, 624*n*, tactics against aircraft, 428, 429-30, 442, 624-5, 628, strength, 12*n*, 264*n*, 281, 294, 410, 417, 420, 628, disposition, 22, 264*n*, 292, 409, 411, 472, 628, Biscay bases, 38, 42, 43, 149, 472, aid from German Air Force, 46, 619, 622, in operations, 1941, 147-8, 150, 1942, 264 *et seq.*, 271 *et seq.*, 276 *et seq.*, 281 *et seq.*, 286 *et seq.*, 293-4, 1943, 427 *et seq.*, 430 *et seq.*, 436 *et seq.*, 519, 614, 617, 618, 620 *et seq.*, 628-9, 1944, 633, losses, 147-8, 431, 436, 437*n*, 444, 618, 623, 624*n*, 633, effect of British Biscay air patrols, 158*n*, 162, 425-6, importance of radar, British search and German search-receiver, 160, 292, 410, 416*n*, 421, 430, 436-7, attack on American seaboard, 165, 263, morale, 264, 431, 434, 436-7, in convoy battles, 410, 415, 421-2, 424-5, 621, 622-3, plans for 1943, 420, supply submarines introduced, 424, effect of British naval support groups, 427, forced from North Atlantic, 434, importance of in preventing invasion of Europe, 475, estimate of, 617, role, 1943-44, 628, new anti-aircraft armament, 628; in Mediterranean, 284, 357, 358*n*, 380, 560, 568-9, reinforced, 163-4, 226, results, 226, disposition, 382-3; in North Indian Ocean, 356; in North-West African campaign, 411 *et seq.*
GERMANY (Maps pp. 278, 318), 213, 269, 309, 312, 316, 328, 331, 332, 335, 486, 560; and Scandinavia, 17, 171; and Low Countries, 18, 172; and Great Britain, invasion of, 34, 173, blockade, 48; and Balkan States, 69, 78, 80, 81, 176; and Russia, 86, 117, 129, 193; and Bomber Command, 168, 172, 175, 176, 298-9, 329, 465-6, 581, 593, 663;

GERMANY—continued

develops air defences, 177, 299, 320; U-boats, 226, 419-20, 472, 617; and Middle East, 252, 385; Allies decide to first defeat, 263; neglects Baltic port defences, 313; and France, occupies Tunisia and southern France, 379-80, takes over French locomotives, 518; importance of Casablanca conference, 475; her situation, 1942, 502, 1943, 635; and American Air Force, 503; and Italy, 561, 576-7, occupation of, 577, 580; allows bomber arm to wither, 581; anti-aircraft gun and search-light production, 582; importance of Peenemunde, 599; sea communications, 609 *et seq.*; and Sweden, 610 *et seq.*; and Japan, 626-7; see also BRITISH AIR FORCE, Bomber Command; HITLER
GERRARD, F-Lt N. C., 429, 435, 618
GESTAPO, in Czechoslovakia, 141
GHAZAL (Map p. 233), 245, 247, 364, 372, 374, 375
GHEL AIRFIELD (Map p. 399), 384
GHENT (Map p. 504), 510, 512
GIANACLSI: see BRITISH AIR FORCE, STATIONS
GIARABUB (Maps pp. 61, 212), 199
GIARRE (Map p. 565), 577
GIBBS, W. Cdr A. R., 17
GIBBS, W. Cdr R. H. M., 94, 216, 223, 225, 231, 244, 365, 371, 375, 383, 400, 404
GIBBS, F-O D. L., 647
GIBRALTAR (Maps pp. 270, 412), 24, 30, 32, 47, 124, 133, 159, 160, 162, 165, 236, 237, 255, 259, 271, 277, 284, 285, 289, 380, 398, 409, 415, 420, 427; danger from Italian and French Navies, 29
GIBRALTAR, STRAIT OF (Map p. 412), 47, 165, 264, 413, 425
GIBSON, LAC, Plate p. 335
GIBSON, W. Cdr G. P., VC, 493-4, 500
GIBSON, Gp Capt W. N. (Plates pp. 14, 15), 6, 7, 14, 27, 30, 40; in destruction of U-26, 25-6
GIDDY, F-O, 217*n*
GIEN (Map p. 318), 310
GIERSCH, F-O E. H., Plates pp. 622, 638
GILLIES, W. Cdr R. N., 272, 276, 624
GILLISON, D., 139*n*, 263*n*, 337*n*, 529*n*
GIOIA (Map p. 565), 577
GIOVANNI BERTA (Maps pp. 61, 233), 67, 376
GIPPS, F-Lt R. de V., 429, 434-5
GIRONDE (Map p. 13), 27, 276, 519; ports, 281
Gladiolus, British corvette, 25
Glasgow, British cruiser, 627
GLASGOW, Maj-Gen Sir William, 530
GLEIWITZ (Germany), 141
GLYDE, F-O R. L., 36
Gneisenau, German battle cruiser, 48, 49, 154, 159, 186, 493, 603; badly damaged, 154*n*; Brest breakout, 189, 265-9, 311
GNOME AND RHONE FACTORY (Paris), 309-10
GOBLE, AvM S. J., 109, 530, 545*n*
GODT, Rear-Adm, 416*n*
GOEBBELS, Dr, Plate p. 654
GOERING, Field Marshal H., 34, 171, 619; considers fighters could protect Ruhr, 476
Golden Fleece, "G"-class flying-boat, 156, 158
GOLDSMITH, Sqn Ldr G. A. P., 229, 239, 251
GOMM, W. Cdr C. L., 451, 479, 500; estimate of, 501, 591
"GONDOLA" OPERATION: see BRITISH AIR FORCE, Coastal Command, Biscay patrols
GOOD, F-O M. R., 594
GOODE, W-O R. M., 439
GOOD HOPE, CAPE OF, 414
GOODRICH FACTORY (Paris), 309-10
GOOLE (Map p. 318), 603
GORDON-GLASSFORD, F-O T. H., 413, 421
GORT, Field Marshal Viscount, VC, 11*n*, 24
GOSNAY (Maps pp. 132, 504), attacked, 134, 136, 138, 510
GOT ES SULTAN AIRFIELD (Map p. 61), 72, 73
GOTTFRIED HAGEN FACTORY, 322
GOUTEVITCH, F-O J., 653
GOZO ISLAND (Map p. 565), 228, 564, 572
GRAFENRHEINFELD (Map p. 318), 661
Graf Spee, German "pocket battleship", 12
Graf Zeppelin, German aircraft carrier, 334
GRAHAM, Sqn Ldr G. D., 449
GRAHAM, Sqn Ldr G. F., 81, 83, 84
GRAINGER, F-O G. M. A., 47
GRAN CANARIA (Canary Islands), 428
GRAND QUEVILLY (Maps pp. 342, 504), 347, 510

- GRANT, Sqn Ldr A. S., 310
 GRASNAVA (Map p. 296), 296
 GRAVELINES (Maps pp. 132, 342), 133, 134, 268, 346, 347
 GRAVESEND (Maps pp. 132, 342), 143
 GRAY, F-O, 217*n*
 GRAY, F-Lt R. R., 441
 GRAY-BUCHANAN, F-Lt S. B., 360
 GRAZIANI, Marshal, 56, 65*n*
 GREECE (Maps pp. 81, 258), 54, 71, 86, 89, 96, 156, 210, 248, 368, 561; Royal Air Force sends aid to, 56, 60, 80; British attack in North Africa to assist, 59; turns down offer of British aid, 67, 78; accepts offers from Eden mission, 69, 79; Anglo-French guarantee, 76, 77; and Germany, Balkan policy threatens, 78, fear of Germany keeps British off northern airfields, 78, Anglo-Greek plan against German attack, 79; new airfields for British, 78; German Air Force in, 230*n*, 386; sends delegates to May 1942 air training conference, 530*n*
 GREECE, CAMPAIGN IN, Italy attacks, 56, 77; support from British Air Force, 56, 77, 84; Germans transfer aircraft from Africa for, 69*n*; Australians in air operations, 76, 81; British land on Crete, 77; specialist British army units to, 78; Greek counter-offensive, 80, 83, 84; Germans attack, 81, 84, 85; Government orders cease-fire, 85; British leave, 85; reaction in Australia and New Zealand, 86; effect on later African campaigns, 196*n*
 GREEK AIR FORCE, 78
 GREENACRE, F-Lt E. R., 640
 GREENLAND (Map p. 164), 270, 432; state of airfields in, 415
 GREENWOOD, Sgt F., Plate p. 639
 GREGORY, F-Lt R. H. W., 355
 GRENFELL, F-Lt K. H., 467
 GRIFFIN, F-O M. T., 157-8, 163
 GRIGGS, F-Lt F. M., 316
 GRIS NEZ, CAPE (Maps pp. 132, 504), 142, 143, 343, 345, 346, 348, 352
 GROSS, F-Lt R. W. S., 441
 GROUND CONTROL INTERCEPTION, importance of in night fighting, 145
 GTAFIA; see RIDOTTA EL GTAFIA
 GUALDI, Italian merchantman, 260
 GUBBI, EL (Map p. 61), 56
 GUEDALLA, P., 240*n*
 GUERLEDAN (Map p. 504), 520
 GUERNSEY (Maps pp. 132, 504), 511
 GUETTAR, EL (Map p. 399), 404, 406
 GUINES (Map p. 342), 346
 GUINGAMP (Map p. 504), 517, 520
 GUNTER, R. S., 664
 GUTHRIE, F-Lt R. C., 272, 278
 GYLL-MURRAY, W Cdr J. E. C. G. F., 179
 H2S; see RADAR, BRITISH
 "HABFORCE"; see BRITISH ARMY
 HAGEN (Map p. 480), 604
 HAGEN, Maj-Gen, 386*n*
 HAGUE, THE (Map p. 318), 192
 HAIFA (Maps pp. 90, 258), 88, 89, 95, 357, 391, 392, 568
 HALDER, Col-Gen Franz, 366
 HALFAYA (Maps pp. 203, 233), 201, 209, 210, 218, 250, 375, 376
 HALIFAX (Canada), Map p. 270), 117, 124*n*, 414
 HALLIDAY, W Cdr N. A. R., 286, 290
 HALSE, F-O B. J., 345
 HALSKE A. G. ELECTRICAL WORKS (Berlin), 647
 HALVERSON, Col Harry A., 238*n*
 HAMA (Map p. 90), 94
 HAMBORN (Map p. 480), 324, 325
 HAMBURG (Maps pp. 318, 656, 657), 483, 594, 602, 639, 642, 647; listed for attack, 176*n*, 185, 299; attacked, 186, 187, 188, 314-15, 470-1, 585-9, 592, 600
 HAMILTON, W Cdr J. S., 338
 HAMM (Maps pp. 318, 480), 174, 176*n*
 HAMMA, EL (Map p. 399), airfield at, 403, 404, 405
 HAMMAN, EL (Map p. 61), airfield at, 53*n*
 HAMMARA (Map p. 90), 94
 HAMMOND, W-O R. F., 280, 289, 294, 419
 HAMPTON ROADS (Map p. 270), 263
 HAMRAJET AIRFIELD (Map p. 399), 400
 HAMWORTHY; see BRITISH AIR FORCE, STATIONS
 HANDASIDE, Sqn Ldr J. F., 283, 440
 HANNAFORD, F-Lt H. R., 232
 HANOVER (Map p. 318; Plate p. 463), 174, 641, 655; listed for attack, 176*n*, 299; attacked, 604-7, 644
 HANSEN, F-Lt H. O., 615
 HARDELOT (Map pp. 342, 504), 343, 346, 510
 HARMET; see ROTONDA HARMET
 HARO FIORD (Map p. 278), 612
 HARPER, F-Sgt F. G., 343
 HARRIS, Marshal of R.A.F. Lord (Plate p. 622), 313, 411*n*, 462, 470; commands Bomber Command, 299; creates new crew post of air bomber, 302; on bombing of Berlin, 332, 635, 641; organisation of Pathfinder Force, 446-7; on employment of Bomber Command, 465, 474, 475-6, 499; March 1943 attack on Essen, 479, 481; obtains permission to use Window anti-radar device, 585; exhorts crews before Hanover attack, 605
 HARRIS, Sgt C. W., 23
 HARROGATE; see BRITISH AIR FORCE, STATIONS
 HARTMANN AND BRAUN FUSE AND INSTRUMENT FACTORY, 652
 HARTNELL, Gp Capt G. C., 425
 HASEIAT, EL (Map p. 212), 211, 214
 HATTERAS, CAPE (Map p. 270), 263
 HAVRE, LE; see LE HAVRE
 HAVYATT, W Cdr H. G., 45*n*, 46-7, 154, 161-2
 HAWKINGE; see BRITISH AIR FORCE, STATIONS
 HAY, F-Lt R. C., 493
 HAZEBOUCK (Map p. 342), attacked, 344, 346
 HEATH, Sqn Ldr P. R., 59
 HEFFERNAN, Gp Capt P. G., 454, 479, 550, 551*n*
 HEINKEL AIRCRAFT FACTORY (Rostock), 312-13
 HEINKEL (ARADO) FACTORY (Warnemünde), 313-14
 HELENSBURGH (Map p. 13), 42
 HELIGOLAND (Map p. 318), 644, 652
 HELIGOLAND BIGHT (Map p. 318), 10, 12, 17, 190, 609, 661
 HELIOPOLIS; see BRITISH AIR FORCE, STATIONS
 Helle, Greek cruiser, 77
 HELMINGHAUSEN (Map p. 318), 461
 HELWAN; see BRITISH AIR FORCE, STATIONS
 HENDERSON, Sqn Ldr J. R., 588
 HENNOCK, W Cdr K. S., 50, 237, 255, 356
 HENRY, R. L., 92*n*
 HENRY, Sgt V. E. M., 274
 HENSCHEL LOCOMOTIVE WORKS (Kassel), 333, 607
 HERAKLION AIRFIELD (Map p. 81), 238
 Herald, The (Melbourne), 557*n*
 HERBERT, F-O H. C., 461
 HESDIN (Map p. 132), 143
 HESDIN FOREST (Map p. 318), 593, 601
 HESTON; see BRITISH AIR FORCE, STATIONS
 HEYDRICH, R., assassinated, 141
 HICKEY, Sqn Ldr W. J., 56, 81, 82, 83
 HIGH COMMISSIONERS, DOMINION, 2
 HIGUER, CAPE (Map p. 13), 288
 HILL, F-Sgt D., 294
 HILLER, Sgt G. E. (Plate p. 78), 94
 Hipper, German cruiser, 49, 296
 HISEIYAT EL OISEIR (Map p. 233), 244
 HISKENS, W-O E. T., 362
 HITLER, Adolf, 171*n*, 189*n*, 385*n*, 430, 576, 577, 611; war policy, 9; during Battle of Britain, 33; cancels invasion of United Kingdom, 34*n*; orders reinforcement of Libya, 70*n*; early policy on Graeco-Italian war, 78; becomes interested in Mediterranean, 220; postpones attack on Malta, 252, 366; withdraws Brest squadron, 268*n*, orders reprisal raids on United Kingdom, 339*n*; on battle of Atlantic, 436; deceived by British cover plan for invasion of Sicily, 561; orders German air force to support U-boats, 619; cancels blockade-running to Japan, 627*n*
 HOBEL STEELWORKS (Dortmund), 324
 HOBLER, Gp Capt J. F., 19
 HODGKINSON, W Cdr V. A., 45, 48, 160, 165, 166, 167
 HOESCH STEELWORKS (Dortmund), 485-6
 HOLDEN, F-Sgt E. J., Plate p. 638
 HOLLAND, 77, 142, 172, 353, 380, 461, 480, 494, 505, 606; Germans invade, 18; Bomber Command operations over, 36, 51, 458-9, 467; Bomber Command-German Air Force fighting over, 316, 332; Fighter Command operations over, 507, 508, 509, 510, 512, 518
 HOLLAND, AC1 F. A., Plate p. 622
 HOLLAND, F-Lt K. R., 647
 HOLLAND, F-O T. V., 431

HOLLINGHURST, Air Marshal Sir Leslie, 99n
 HOLME-ON-SPALDING MOOR; *see* BRITISH AIR FORCE, STATIONS
 HOLMES, W Cdr R., 613, 614, 617
 HOMS (Maps pp. 90, 399), 93, 401, 408
 HOOK OF HOLLAND, 610
 HOOPER, F-Lt R. C., 238, 239
 HOPKINS, Harry L., 416n
 HORAN, F-O J. H., 17, 18
 HORNBY, F-Lt R. H., 294
 HORNCHURCH; *see* BRITISH AIR FORCE, STATIONS
 HORN REEFS (Map p. 278), 272, 278
 HORNUM (Map p. 318), 16
 HOUSTON, F-Lt G. R., 519
 HOWARD, W Cdr B., 520
 HOWDEN, W Cdr G., 519
 HOWES, F-Lt T. E. W., 249
 HOWSON, W Cdr P. W., 237, 356, 395
 HUBBARD, W Cdr A. L. G., 181, 450
 HUGALL, F-Lt C. B., 629
 HUGHES, P-O G. S., 640
 HUGHES, F-Lt P. C., 36
 HULL (Map p. 278), 11
 HULS (Maps pp. 480, 504), 183, 185, 510-11
 HULST (Map p. 504), 510
 HUMBLE, F-Lt R. C. W., 440, 441-2
 HUMBOLDT DENTZ WORKS (Cologne), 322
 HUMPHREY, W Cdr A. H., 133, 137n
 HUMPHREY, F-Lt M. S., 613, 614, 615
 HUN AIRFIELD (Map p. 399), 383
 HUNGARY, 141
 HUNTER, Cpl D. T., 163
 HUNTINGDONSHIRE, 181
 HURLEY, F-O T. K., 12, 17, 18
 "HUSKY" OPERATION; *see* SICILY, invasion of
 HUTLEY, F-Lt W. D., 101
 IBSELY; *see* BRITISH AIR FORCE, STATIONS
 ICELAND (Maps pp. 164, 270), 148, 149, 150, 295, 410, 411, 415, 420, 427, 432, 616, 622; development of Coastal Command bases in, 38n, poor transit facilities at, 124n; R.A.F. in, 155
 ICELAND-FÆROES CHANNEL (Map p. 282), 149n, 274
 IKU; *see* BRITISH AIR FORCE, STATIONS
 I.F.F., importance of, 142; *see also* RADAR, BRITISH
 IPOLD, Sqn Ldr E. L., 334
 I.G. FARBEN CHEMICAL WORKS (Cologne), 467
 I.G. FARBEN CHEMICAL WORKS (Leverkusen), 602
 I.G. FARBEN FACTORY (Ludwigshaven), 595, 596
 I.G. FARBEN FACTORY (Mannheim), 497
 I.G. FARBEN INSTRUMENT FACTORY (Munich), 598
 IMUIDEN (Map p. 318), 459
 IKINGI MARYUT AIRFIELD (Map p. 61), 53n, 58, 66
 IMPERIA (Map p. 412), 579
 INDIA, 248, 454, 563; air reinforcement of, 218, 336, 502; dispersal of RAAF in, 547
 INDIAN ARMY
 —DIVISIONS: 4th, 60, 64, 100n, 200, 201, 215, 10th, 93
 —BRIGADES: 5th, 87, 88, 91
 INDIAN OCEAN (Map p. 357), 40, 232n, 237, 262; air reinforcement of, 220-1, 277, effect on Middle East, 232
 Inga, Danish merchantman, 278
 INONU, President, 79
 IONIAN SEA, 238
 IPSWICH (Maps pp. 132, 342), 511
 IRAN; *see* PERSIA
 IRAQ, 54, 77, 87, 88, 92, 93, 193, 360, 393, 395; revolt in, 76, 86
 FREDALE, W Cdr R. W., 335, 452
 IRELAND, 38, 48, 159, 271, 284, 414, 415, 429, 629
 IRISH SEA (Maps pp. 132, 278), 131, 146, 156, 338, 339
 ISAACSON, W Cdr P. S., 333, 464, 469
 ISIGNY (Map p. 504), 509
 ISLAY, ISLE (Map p. 13), 42
 ISMAILIA; *see* BRITISH AIR FORCE, STATIONS
 ISOTTA-FRASCHINI FOUNDRY (Milan), 465
 Istria, Italian merchantman, 256, 260
 ITALIAN AIR FORCE, 72; compared to RAF, 54-5, 60, 68; strength in Middle East, 54-5, in First Libyan campaign, 60, 65n, 67n; losses, 55n, 66, 84n; inefficiency of 56; in First Libyan campaign, 60, 62, 64, 65, 67, 148n; in Albania, 82; and Malta, 87, 225, 229, 237, 251-2; in Second Libyan campaign, 198, 206, 209, 213; in Second and Third

ITALIAN AIR FORCE—continued

German African campaigns, 216-17, 230, 235; operations round Mediterranean convoys, 289; in battle of Alamein, 371; in Tripolitanian campaign, 400-1; in Tunisian campaign, 406; night-fighter operations, 499, 591, 592; in Sicilian campaign, 562, 570, 573, 574, 578
 ITALIAN ARMY, in North Africa, 56, 59, 62, 63, 64n, 67, 70, 232-5, 246-7, 253-5, 256-7, 260-1, 384, 406, Rommel's opinion of, 366-7; invades Greece, 77; in Sicilian campaign, 571; *see also* GERMAN ARMY: ARMY GROUP OF TUNIS, PANZER ARMY, AFRICA
 —ARMIES: First, in Tunisian campaign, 402n, 406, 409, Tenth, 68
 —CORPS: X, 232n. XX, 232n, 260. XXI, 232n
 —DIVISIONS: Ariete (Arm'd), 70n, 232n, 246n, Brescia (Inf), 232n, 253. Pavia (Inf), 232n, 253, Pistola, 259. Sabrata, 232n. Trento (Motorised), 70n, 232n. Trieste, 232, 234
 ITALIAN NAVY, 29, 237, 356, 398, 568; at Taranto, 56; submarine activity, 148n, 283-4, 293, 423, 428, 472, in Mediterranean, 284-5, 295, 358n, 560; immobilises British battleships at Alexandria, 226; threatens June 1942 Malta convoys, 238-9; oil shortage for, 252n; in Mediterranean supply war, 359; state of, 379-80; in North-West African campaign, 411-13; in Sicilian campaign, 579
 ITALY (Maps pp. 258, 412, 565), 19, 32, 51, 52, 76, 170, 196, 210, 213, 260, 261, 368, 396, 402n, 406, 408, 431, 562, 563, 564, 577, 578; enters war, 23, 55, 172; and Germany, 53, 252, 382, 561, 582; invades Greece, 56, 77; air attacks on, 77, 78, 174, 219, 334, 462-5, 468, 499-500, 589-92; reinforces North Africa, 246; strength of, 385, 560; 576, 580; air defence of, 462, 589; invasion of, 580, 590-1; capitulates, 607
 JACKSON, F-O F. R., 327
 JACKSON, Sqn Ldr J. F., 94
 JACOMBS, F-O R. M. N., Plate p. 638
 JAPAN, 178, 186n, 524, 610; enters war, 165; Pearl Harbour success, 185; blockade runners from, in North Atlantic, 626-7
 JAPANESE AIR FORCE, 525
 JAPANESE NAVY, 357; submarine activity, 288, 356
 JAPANESE WAR, effects of in Atlantic, 178, in Indian Ocean area, 232n; draws resources from Coastal Command, 262; effect on Australian E.A.T.S. squadrons, 535
 JARVIS, Cpl V. J., 66
 JDAIDA (Map p. 90), 92
 JEBEL DRUSE (Map p. 90), 92
 JEFFREY, Gp Capt P. (Plate p. 78), 70, 74, 89, 91, 197, 201, 204, 206
 JEFFRIES, F-O R. J. D., 106, 200
 JENA (Map p. 318), attacked, 460-1
 JENKINS, Sqn Ldr H. V., 266
 JERSEY ISLAND (Map p. 504), 511
 JEWELL, Sqn Ldr W. E. (Plate p. 78), 106, 204
 JEZZINE (Map p. 90), 91
 JIGGIGA AIRFIELD (Map p. 357), 356
 JODL, Col-Gen Alfred, 366; on reasons for German failure in Africa, 384n; on defence of Sicily, 577
 JOHNSTON, W Cdr L. L., 180, 382, 397, 563
 JOHNSWOOD, F-Lt L. H., 664
 JOINT COMMONWEALTH AIR TRAINING PLAN; *see* EMPIRE AIR TRAINING SCHEME
 JONES, Air Marshal Sir George, 2
 JONES, Sqn Ldr R. S., 213
 JORDAN, W. J., Plate p. 526
 JOUBERT DE LA FERTE, Air Chief Marshal Sir Philip, 288; Air Officer Commanding Coastal Command, 149; opinions of, 151; concerned at shortage and inexperience of Coastal Command crews, 262; deploys Coastal Command units, 264; considers Coastal Command too small for task, 269-70; states requirements for successful anti-submarine operations, 271; warns on danger in Atlantic, 274; opinion on bombing Biscay ports, 416n; on anti-shipping role of Coastal Command, 609
 JUDELL, F-Lt M. L., 285
 JURBY; *see* BRITISH AIR FORCE, STATIONS
 KABRIT; *see* BRITISH AIR FORCE, STATIONS
 KAIRUAN AIRFIELD (Maps pp. 399, 412), 406, 408, 562

- KALAFRANA; *see* BRITISH AIR FORCE, STATIONS
 KALAKH, JEBEL (Map p. 233), 253, 364, 365
 KALDAJARNES; *see* BRITISH AIR FORCE, STATIONS
 Kaldnes, Norwegian merchantman, 613
 KAMARAN AIRFIELD (Map p. 357), 356
 KAMMHUBER LINE; *see* GERMAN AIR FORCE
 KARLSRUHE (Map p. 318); attacked, 329-30, 332
 KASSEL (Map p. 318), 299, 495; attacked, 333, 607
 KASSERINE (Map p. 399), 402
 KASTROP RAUXEL (Map p. 480), 605
 KAUFMAN, W Cdr K. W., 450, 611
 KEITEL, Field Marshal Wilhelm, 34n
 KELAHER, Sqn Ldr C. R., 602
 KELL, P-O A. E., Plate p. 638
 KELLWAY, C. V., 2, 530
 KEMMIS, Sqn Ldr V. D., 574
 KENLEY; *see* BRITISH AIR FORCE, STATIONS
 KENNARD, F-Lt R. W., 287
 KENNEDY, LAC W. J., Plate p. 111
 KENT, F-O J. F. S., 104, 105, 134
 KENYA (Map p. 357), 54
 Keppel, British destroyer, 621
 KESSELRING, Field Marshal Albert, 220, 225, 252, 259, 366, 368, 386n; commands *Second Air Fleet*, 214, attacks Malta, 226, 227; as C-in-C South, 231n, 236; hastens supplies to North Africa, 260; orders full air force support during Alamein offensive, 261; forbids day bombing of Malta, 362; on assistance to Rommel, 367; on 1942-43 African campaigns, 385n; plans in Tunisian campaign, 402n; on Mareth counter-attack, 403n; on transport aircraft losses in Tunisian campaign, 407n; on defence of Sicily, 577
 KHARTOUM, 238n
 KHATATBA; *see* BRITISH AIR FORCE, STATIONS
 KHORMAKSER; *see* BRITISH AIR FORCE, STATIONS
 KTEL (Maps pp. 31, 318), 157, 647, 654; attacked, 185, 186, 187, 189, 299, 313, 398n, 644
 KIERATH, F-Lt R. V., 408
 KILDEY, Sqn Ldr E. K., 241
 KING, Fleet Admiral Ernest J., 281
 KINGSFORD-SMITH, W Cdr R., 604, 644; estimate of, 649
 King's Regulations, 98n
 KINGSTON-MCCLOUGHRY, AVM E. J., 8
 KIRTON-IN-LINDESEY; *see* BRITISH AIR FORCE, STATIONS
 KISWE (Map p. 90), 91
 KITCHEN, W-O D. G., 313
 Klaus Howaldt, German merchantman, 614-15
 KLOSTER, F-O W. G., Plate p. 78
 KNAAPPET, LAC R. A., Plate p. 111
 KNAUER, F-O L. G., 294
 KNIGHT, F-Lt L. G., 494
 KNIGHT-BROWN, F-O N. H., 463
 KNIGHTSBRIDGE (Map p. 233), 232, 235, 240
 KNOWLES, F-Lt L. E. S. (Plate p. 78), 93
 KNOX-KNIGHT, Air Cmdr E. G., 39, 46, 120, 152, 304
 KNOVETT, F-Sgt E. M. H., Plate p. 207
 KOBLENZ (Map p. 318), 497
 KODAK HOUSE (London), 542n; houses Overseas HQ, 119
 KOLA INLET (Map p. 296), 295
 Koln, German light cruiser, 296
 Konigsberg, German cruiser, 17
 KORYZIS, Alexander, 79
 KOTA BHARU, 529n
 KREFELD (Map p. 480), 328; attacked, 488-9
 KRISTIANSUND (Map p. 278), 279
 Krossforn, German tanker, 418
 KRUPP FACTORIES, at Essen, 322, 324, 325, attacked, 467, 481, 483, 660; at Duisburg, 327; at Magdeburg, 658
 KSAR EL HALLOUF (Map p. 399), 403
 KSAR RHILANE (Map p. 399), 404
 KUNEITRA (Map p. 90), 91
 KUSEIR (Map p. 90), 92
 KYLE, Gp Capt W. H., 192, 460
 Kyma, Greek merchantman, 16
 LA BOUSSAC (Map p. 504), 517
 LACHAL, Air Cmdr L. V., 6, 7, 12, 108
 LA HAYE DU Puits (Map p. 504), 518
 LAKHTA, LAKE (Map p. 296), 296
 LA MARSA (Map p. 412), 567
 LAMBALLE (Map p. 504), 517, 518
 LAMPEDUSA ISLAND (Maps pp. 258, 565), 566
 LAMPIONE ISLAND (Map p. 565), 566
 LAMSDORF, 141
 LANCASHIRE, 146, 338
 LANCASTER, F-Lt V. A., 509
 LANDER, General, 33
 Landguard, British (Coast Guard) cutter, 619
 LANDING GROUND-21 (Map p. 233), 365
 LANDING GROUND-40 (Map p. 233), 237
 LANDING GROUND-75 (Map p. 212), No. 451 Sqn at, 197; No. 450 Sqn at 242; No. 3 Sqn at, 243
 LANDING GROUND-102 (Map p. 233), *see* Sidi HANEISH AIRFIELD
 LANDING GROUND-110 (Map p. 212), 197
 LANDING GROUND-122 (Map p. 212), 198, 202
 LANDING GROUND-123 (Map p. 212), 198
 LANDING GROUND-124 (Map p. 212), 198
 LANDING GROUND-125 (Map p. 212), 198
 LANDING GROUND-132 (Map p. 212), No. 451 Sqn at, 199, 204
 LANDING GROUND EMERGENCY-74 (Map p. 61), 62
 LANDING GROUND EMERGENCY-79 (Map p. 61), 73
 LANDS END (Map p. 13), 29
 LANE, F-O E. H., 94
 LANE, F-Lt E. O., 597
 LANGDON, F-Lt N. J., 297
 LANGERBRUGGE (Map p. 504), 510
 LANVEOC-POULMIC AIRFIELD (Map p. 504), 514
 LAON (Map p. 318), 19
 LA PALLICE (Map p. 13), 159, 283n, 288, 294, 473; U-boat base at, 149, 472; attacked, 509n
 LAPHORNE, F-Lt R. W., 398
 Lara, Italian merchantman, 373
 LARISA AIRFIELD (Map p. 81), 82, 83
 LARKIN, W Cdr H. R., 266
 LARNACA (Map p. 258), 250
 LARVICK (Map p. 278), 613
 LAURENTI, F-O D., 291
 LAVARACK, Lt-Gen Sir John, 92
 LAVER, Sqn Ldr J. C., Plate p. 78
 LAVERTON AIRFIELD; *see* AUSTRALIAN AIR FORCE, STATIONS
 LAW, INTERNATIONAL, 41
 LAW, F-Lt D. R., 372
 LAWRENCE, W. J., 310n
 LAWSON, J. H. W., 297n
 LEAHEY, F-Lt J. J., 359
 LEASE-LEND, 532
 LEBANON, THE (Map p. 90), 88
 LE BOURGET AIRFIELD (Map p. 504), 512
 Le Chevalier Paul, French destroyer, 91
 LECLERC, Gen J. P., 404
 LECONFIELD; *see* BRITISH AIR FORCE, STATIONS
 LE CREUSOT (Map p. 318), 310-11, 461, 500n
 LEES, Air Cmdr R. B., 11
 LEGENTILHOMME, Gen Paul, 87, 91, 93
 LEGGO, Sqn Ldr J. F., 492-3
 LEHORN (Map p. 590), 592
 LE HAVRE (Maps pp. 13, 342, 504), 37, 266, 341, 352, 503, 507, 511; attacked, 187, 188, 344, 345
 LEICESTERSHIRE, 451
 LEIGH LIGHT, 283, 286
 LEIGH-MALLORY, Air Chief Marshal Sir Trafford, 502, 506
 LEIGHTON, Sqn Ldr J. W. E., 317
 LEIPZIG (Map p. 318), 650, 661; attacked, 641, 652-4
 Leith, British sloop, 16
 LEITH, F-Lt C. R., 514
 LE MANS (Map p. 504), 511
 LEONFORTE (Map p. 565), 575
 LE POER-TRENCH, F-Lt F. A., 257
 LESTER, F-Lt H. C., 227
 LE TOUQUET AIRFIELD (Maps pp. 132, 342, 504), 138, 343, 346, 509; attacked, 129
 LE TRAIT (Map p. 504), 512
 LE TREPOT (Maps pp. 132, 504), 133, 509
 LEU, F-Lt R. M., 200, 206, 207, 215, 217n
 LEUCHARS; *see* BRITISH AIR FORCE, STATIONS
 LEVANT, 76, 86, 87, 95, 250, 358, 384, 391, 392, 393
 LEVERKUSEN (Map p. 480), 467, 602
 LEVITUS, Sgt S., 313
 LEWIS, F-O D. E., 134, 135, 137n, 138, 341
 LEWIS, F-O O. J. T., 9
 LIAISON; *see* AUSTRALIAN AIR FORCE; BRITISH AIR FORCE
 LIBYA (Map p. 399), 55, 78, 86, 96, 103, 163, 196, 214, 219, 232n, 248, 391, 395, 398; priority given to British operations in, 65

- LICATA AIRFIELD (Map p. 565), 561, 565; captured, 571
 LICHFIELD; *see* BRITISH AIR FORCE, STATIONS
 LIGURIAN SEA (Map p. 412), 579
 LILLE (Maps pp. 132, 504), 143, 306; attacked, 190, 348, 505; Lille-Sequedin power house, 134
 LILLERS (Map p. 342), 343
 LIMAVADY; *see* BRITISH AIR FORCE, STATIONS
 LINCOLNSHIRE, 115, 130, 179, 349, 479
 LINDEMAN, Gp Capt G. M., 297, 301, 309, 613
 LINOSA ISLAND (Map p. 565), 566
 LISBON (Map p. 282), 156, 580
 LISTER (Map p. 278), 11, 273, 279, 612, 613, 616, 617
 LISTER DAM (Map p. 480), 494
 LIVERPOOL (Maps pp. 13, 132), 29, 37, 338; attacked, 33
 LLOYD, Rt Hon Lord, 23
 LOCKE, Sqn Ldr H. B., 598
 LOFOTEN ISLAND (Map p. 296), 280
 LOIRE RIVER (Maps pp. 13, 504), 23, 518
 LOMBARDY, PLAIN OF (Map p. 590), 592
 LONDON, 80, 109, 123, 174, 387, 393, 528, 529, 532, 534, 535, 536, 538, 542*n*, 558; attacked, 34, 50, 144
 LONDON, CAPT J. W., 100*n*
 LONDON DEFENCE CONFERENCE, 1939, 108
 LONEY, F-Lt W. G., 623, 629
 LONG, F-Lt E. I., 26, 421
 LONG, G., 80*n*, 87*n*, 88*n*
 LONGBOTTOM, Sqn Ldr M. V., 31
 LONGITUDE 70 DEGREES EAST, Japanese-German boundary in Indian Ocean, 357
 LONGMORE, Air Chief Marshal Sir Arthur, 8, 52, 62*n*, 71*n*, 96, 97; takes over Middle East air forces, 54, responsibilities, 76; and air reinforcement of Greece, 56, 77, 80, effect in Egypt, 78; on Sqn Ldr Hickey, 82
 LORENZ RADIO WORKS (Berlin), 470
 LORIENT (Maps pp. 13, 42, 504), 43, 149, 190; U-boat base at, 38, 472; attacked, 473-4, 509
 LOSSIEMOUTH; *see* BRITISH AIR FORCE, STATIONS
 LOVELL, Sgt J. H., 311
 LOVELOCK, W Cdr R. C. O., 286
 LOW COUNTRIES; *see* BELGIUM; HOLLAND
 LUBECK (Map p. 318), 320; listed for attack, 299; importance of, 311; attacked, 311-12; reasons for Bomber Command success at, 313
 LUCAS, F-Lt R. D., 629
 LUDHAM; *see* BRITISH AIR FORCE, STATIONS
 LUDWIGSHAVEN (Map p. 318); attacked, 594-6
 LUFTWAFFE; *see* GERMAN AIR FORCE
 Luigi Torelli Italian submarine, 283, 284
 Luisiano, Italian tanker, 373
 LUMLEY, Sgt R. C., Plate p. 639
 LUQA; *see* BRITISH AIR FORCE, STATIONS
 Lutnow, German "pocket-battleship", 156-7, 616; *see also* Deutschland
 LUXEMBOURG (Map p. 318), 77, 172; Germany invades, 18
 LYDDA AIRFIELD (Map p. 90), 249; No. 3 Sqn at, 76; No. 458 Sqn at, 250; No. 459 Sqn at, 568
 LYMPNE; *see* BRITISH AIR FORCE, STATIONS
 LYNCH, F-Lt G. B., 433
 LYONS, GULF OF (Map p. 412), 412
 MAASLUIS (Map p. 318), 458
 MAASTRICHT (Map p. 318), 20
 MAASTRICHT-HASSEL ROAD (Map p. 318), 18
 MAATEN BAGUSH (Map p. 61), 53*n*, 55, 101
 MAATEN BELCLEIBAT (Map p. 212), 213
 MAATEN GIOFER (Map p. 212), 213
 MCBURNIE, Sqn Ldr D. H., 246
 MCCLOUGHRY, E. J. K., *see* KINGSTON-MCCLOUGHRY
 MCCLOUGHRY, AVM W. A., 8, 52
 MCCORMACK, W Cdr A. O., 645
 MCCULLOCH, F-Lt J., 634
 MCDADE, F-Lt P. V., 514
 MACDONALD, Miss, of the Isles, 125*n*
 McDONALD, Sqn Ldr A. McK., 464
 McDONALD, Sqn Ldr J. G., 102
 McDONALD, P-O S. R., Plate p. 639
 MACEDONIA (Map p. 81), 79
 MCEWEN, Hon J., 116, 118
 MACHICHACO, Cape (Map p. 13), 288
 MACHINA, EL (Map p. 399), 69*n*
 MACHSEE, Lake (Hanover), 60*n*
 MCINTOSH, Sqn Ldr I. A., 18, 19
 MCINTOSH, F-Lt L., 572
 MCIVER, P-O K. A., 598
 MACKAY, W Cdr R. C., 358
 MACKELLAR, F-Lt J. D., 360
 MCKENZIE, F-Lt D., 519
 MCKENZIE, F-Lt M. K., 428
 MACKIE, W-O W., 434
 McLACHLAN, Air Cmdr I. D. (Plate p. 46), 57, 62, 98, 100*n*, 120; comds RAF Sin Benina, 70; appointed RAAF liaison offr Middle East, 112
 MACLEAN, F-Lt D. H., 347, 348
 MACLEOD AIRFIELD (Canada); *see* CANADIAN AIR FORCE, STATIONS
 McNAMARA, AVM F. H., VC (Plate p. 526), 57*n*, 99*n*, 108, 109, 112, 114, 122*n*, 127, 305, 536; proposes Aust reception base in Britain, 4; DAOC Overseas HQ, 119; AOC Aden, 391; desires to recast Australian holding unit in Britain, 529
 MADAGASCAR, 379
 MADDALENA (Maps pp. 212, 233), 196, 198, 202, 204, 209, 243
 "MAD MULLAH" REVOLT, 52
 MAGDEBURG (Map p. 318), 641, 644, 658
 MAGHRA, EL (Map p. 233), 361
 MAGNETIC DETECTION OF SUBMARINES, development of compared to ASV, 39
 MAGNETRON VALVE; *see* RADAR, BRITISH
 MAGRUN AIRFIELD (Map p. 212), 209, 377
 MAHADY, F-Lt M. J., 247
 MAHAR, F-Lt E. L., 251
 MAIKOP (Russia), 391
 MAILEY, Sgt W. H. A., 217*n*
 MAIN RIVER (Map p. 318), 331
 MAINPRIZE, F-Lt M. S., 436
 MAINTENANCE PROBLEMS, 102; *see also* AUSTRALIAN AIR FORCE, Nos. 10 and 461 Squadrons
 MAINZ (Map p. 318; Plate p. 303), 331-2
 MAKNASSY (Map p. 399), 405
 MAKTILA, EL (Map p. 61), 60
 MALAYA, 337, 534, 535; British reverses in, 126
 MALETT (Map p. 565), 577
 MALTA (Maps pp. 258, 399), 55, 56, 86, 103, 156, 162, 164, 190, 219, 248, 249, 255, 271, 349, 358, 395, 398, 406, 411, 502, 510, 563, 565, 571, 572, 573, 574; German air attacks, 69*n*, 70*n*, 87, 214, 221-2, 225, 226, 227*n*, 229, 251, results, 221-2, 226-7; Germans plan to capture, 220, 252; importance in Mediterranean, 220, 564; in supply war 226, 253, 361; strategic importance of Martuba airfields, 377; *see also* BRITISH AIR FORCE, MIDDLE EAST COMMAND; CONVOYS, Malta
 M.A.N. FACTORY (Augsburg), 334, 661
 MANDAL (Map p. 278), 615
 Manela, Coastal Command depot ship, 46
 MANGER, F-Lt F. V., 289
 MAN, ISLE OF (Maps pp. 13, 132), 7, 131
 MANNHEIM (Map p. 318), 176*n*, 299; attacked, 184, 330, 469, 497, 594-6, 636-7
 MANNING, F-Sgt L. J., Plate p. 638
 MANSOUR, DIEBEL (Map p. 399), 406
 MANSTON; *see* BRITISH AIR FORCE, STATIONS
 Manzoni, Italian merchantman, 397
 MARAIS DE ST MICHE (Map p. 504), 520
 MARAUA (Map p. 61), 232
 MARAUA AIRFIELD (Map p. 61), 72, 73
 MARBLE ARCH (Map p. 399), 383, 384
 MARCONI WIRELESS EQUIPMENT, 553
 MARDICK (Maps pp. 132, 342), 134, 268, 341
 MARETH (Map p. 399), 386*n*, 403, 404
 MARETH LINE (Map p. 399), 402, 403; fall of, 405
 MARETTIMO ISLAND (Map p. 565), 397
 MARGATE (Map p. 13), 34
 MARGHANA AIRFIELD (Map p. 565), 566
 MARIENDORF, Berlin suburb, 602
 MARITZA AIRFIELD (Map p. 81), 84
 MARKS, W Cdr R. W., 284-5, 289
 MARQUISE (Maps pp. 132, 342), 135, 137, 347
 MARROWS, F-Lt D., 442-3, 620, 629
 MARSA BREGA (Maps pp. 61, 212), 69, 210, 213
 MARSA EL CHETETTA (Map p. 212), 202
 MARSALA (Map p. 565), 397
 MARSEILLE (Map p. 412), 7
 MARSH, Sgt, Plate p. 46
 MARSH, W Cdr H. D., 642, 649, 651
 MARSHALL, F-Sgt C. F., Plate p. 207
 MARSHALL, General of Army George C., 238*n*
 MARSHALL, Sqn Ldr R. S. O., 238, 239, 358, 373, 397
 MARSHALL, Sqn Ldr W. D., 651

- MARTIN, W Cdr C. E., 186, 330, 479, 590; estimate of, 501
- MARTIN, F-Lt E. B., 284, 288
- MARTIN, Sqn Ldr H. B., 493, 591
- MARTIN SCHMITTNER FACTORY (Augsburg), 661
- MARTLESHAM; *see* BRITISH AIR FORCE, STATIONS
- MARTUBA AIRFIELD (Maps pp. 61, 233), 65, 67, 73, 74, 218, 222, 224, 231, 375; strategical value of, 377
- MARYUT AIRFIELD; *see* IKINGI MARYUT AIRFIELD
- MARYUT, LAKE (Maps pp. 61, 233), 104
- MASSEY, Rt Hon V., Plate p. 526
- MATAPAN, BATTLE OF, 84
- Mataroa*, British transport, 249
- MATEUR (Map p. 399), 402
- MATFORD FACTORY (Poissy), 309-10
- MATAMATA HILLS (Map p. 399), 403, 404, 405
- MATRUH; *see* MERSA MATRUH
- MAUGERI, Admiral Franco, 411*n*
- MAUNDER, F-Sgt J. H., Plate p. 639
- MAWER, F-O G. A., 351
- Mayenne*, French merchantman; *see* *Fabiano*
- MAYERS, W Cdr H. C., 36, 231, 254; comds No. 239 Wing, 222
- MAZINGARBE (Maps pp. 132, 342), 137, 343
- MEAKIN, W Cdr H. J. W., 460
- MÉAULTE (Maps pp. 342, 504), 352, 508
- MECHILI (Maps pp. 61, 212), 66, 67, 68, 72, 74, 209, 210; No. 3 Sqn at, 215
- MEDENINE (Map p. 399), 402, 403; Nos. 3 and 450 Sqs at, 405
- MEDINE SIDONIA, DUKE OF, 269
- MEDITERRANEAN AIR COMMAND, formation of, 386-9; advantage of, 398; in Tunisian campaign, 401-9; in Sicilian campaign, 562, 566, 572; at Pantelleria, 566; attacks Italy, 607; *see also* AMERICAN AIR FORCE; BRITISH AIR FORCE
- NORTH-WEST AFRICAN AIR FORCE, composition of, 388-9; in Tunisian campaign, 405, 406, 407; in Sicilian campaign, 562-4, 566, 570
- NORTH-WEST AFRICAN COASTAL AIR FORCE, 390; role in Sicilian campaign, 563, 568, 578
- NORTH-WEST AFRICAN PHOTOGRAPHIC RECONNAISSANCE WING, 564*n*
- NORTH-WEST AFRICAN STRATEGIC AIR FORCE, 389, 390; in Tunisian campaign, 406-7; in Sicilian campaign, 562-3, 564; attacks Rome, 576
- NORTH-WEST AFRICAN TACTICAL AIR FORCE, 386*n*, 388, 390; in Tunisian campaign, 407; in Sicilian campaign, 563-4
- MEDITERRANEAN SEA, 29, 53, 54, 56, 80*n*, 86, 91, 129, 156, 165, 190, 196, 214, 255, 264, 269, 277, 284, 294, 380, 388, 409, 413, 423*n*, 435, 475, 500, 555, 560, 563, 567, 576, 579, 593, 609, 610; importance, 52; effect of withdrawal of German Air Force from Sicily, 87; German planning, 220, 385, strength, 225, U-boats based in, 264*n*, German defeats, 617; British losses, 178, 185, submarine successes, 256, RAF control, 362, 398, RAF reorganisation, 391, Coastal Command units sent, 611; extension of war in, 379, 580; Allied strength, 384, 385-6; effect of Bomber Command attacks on Germany, 581-2
- MEDJEZ EL BAB (Map p. 399), 409
- MELAB, DIEBEL (Map p. 399), 404, 405
- MELAZZO (Map p. 565), 577
- MELBOURNE, 122*n*, 123, 535, 536, 558
- MELTO (Map p. 565), 577
- MELLOR, Sgt J., Plate p. 207
- MELLOR, F-Lt L. H., 103
- Mendoza*, British transport, 249
- Menes*, German merchantman, 367
- MENIDI AIRFIELD (Map p. 81), 83
- MENZIES, Rt Hon R. G., 523
- MERDJAYOUN (Map p. 90), 88, 91, 92
- MERSA MATRUH (Maps pp. 61, 233), 56, 64, 243, 244, 249, 255, 256, 257*n*, 261, 375, 379
- MERSA MATRUH AIRFIELD (Map p. 61), 52, 53*n*, 237, 393; No. 3 Sqn at, 73; No. 451 Sqn at, 391
- MERVILLE AIRFIELD (Map p. 504), 512
- MESMIYE (Map p. 90), 91
- MESOPOTAMIA, 52
- MESSE, Field Marshal, 402*n*, 409
- MESSINA (Map p. 565), 407, 574, 575, 577, 580; attacked, 567
- MESSINA, STRAIT OF (Map p. 565), 561, 577, 578, 579*n*
- METAXAS, Gen J., 77, 79
- METEOROLOGY; *see* BRITISH AIR FORCE; BOMBER COMMAND, COASTAL COMMAND
- METHERALL, LAC W. J., Plate p. 111
- METHWOLD; *see* BRITISH AIR FORCE, STATIONS
- METULLA (Map p. 90), 88
- MEUSE RIVER (Map p. 318), 19, 172
- MEZIDON (Map p. 504), 518
- MIDDLE EAST, 77, 102, 114, 117, 123, 148, 159, 162, 164, 194, 196, 214, 220, 237, 247, 263*n*, 287, 301, 305*n*, 343, 352, 356, 390, 408, 452, 454, 526, 534, 535, 542, 547, 552, 557, 563, 570; significance to Australia, 52; Anglo-French plans, 53-4; RAAF reinforcement of, 57, 112, 113, 116, 120, 249, RAAF administration in, 119, 120, 126; situation, May 1941, 76, 86, 96; British air reinforcement of, 156, 336; German threat to, 193, 252
- MIDDLESBOROUGH (Map p. 318), 172
- MIDDLETON, P-O R. H., VC, 463-4
- MIDDLE WALLOP; *see* BRITISH AIR FORCE, STATIONS
- MILAN (Map p. 590), 602; attacked, 456, 462, 465, 590-1
- MILDENHALL; *see* BRITISH AIR FORCE, STATIONS
- MILFORD HAVEN (Map p. 13), 37, 158, 435
- MILO AIRFIELD (Map p. 153), 566
- MILOS (Map p. 258), 398
- MILSON, W Cdr C. G., 358, 397
- MINE-LAYING, by Bomber Command, 171-2, 189-91, 306-8, 452, 471*n*, 474, 476, 498, 500, 593, 611, 652, 654, 661, against Brest flotilla, 266, 268; by Coastal Command, 610; by German Air Force, 171
- MINQAR EL AHMAR (Map p. 233), 244
- MIRER; *see* DEIR EL MIRER
- MISCHEIFA (Map p. 233), 375
- MISTERBIANCO (Map p. 565), 575
- MISURATA (Maps pp. 258, 399), 402
- MITCHELL, F-Sgt G. J., Plate p. 639
- MITCHELL, Air Chief Marshal Sir William, 8, 52, 54
- MITERIYA (Maps pp. 233, 369), 370
- MODANE (Map p. 590), 607
- MOHNE DAM (Maps pp. 318, 480; Plate p. 462), 493-4, 599
- MOLESWORTH; *see* BRITISH AIR FORCE, STATIONS
- MOLESWORTH, Sqn Ldr J. R. N., 335, 381
- MOLLOY, LAC, Plate p. 335
- MOLLOY, Col A. D., 195, 205*n*
- MOOMBASA; *see* BRITISH AIR FORCE, STATIONS
- MONCTON AIRFIELD; *see* CANADIAN AIR FORCE, STATIONS
- MONS (Map p. 132), 143
- MONT CENIS TUNNEL (Map p. 590), 607
- Monterey*, American transport, 119
- MONTFORT (Map p. 504), 517
- MONTGOMERY, Field Marshal Viscount, 364, 383, 400; at Alamein, 256-7, 368-9, 371; praises No. 201 Group, 373*n*; at Mareh line, 402, 404
- MONT ST MICHEL (Map p. 504), 517
- Mooltan*, British armed merchant cruiser, 29
- MOORE, Sqn Ldr K., 360
- MOORE, Sqn Ldr P. B., 310-11
- "MOORINGS"; *see* BRITISH AIR FORCE, COASTAL COMMAND, patrols
- MORALE, Australian, 555; in U.K., 47, 118, 126; in M.E., 120, 123, 250, 391-4, 395-6, 557. *Royal Air Force*, 292, 477-8, 633, 636. German, 264, 431, 434, 436-7, 474, 602, 635. Russian, 475
- MORAN, F-Lt H. A. L., 288, 435
- MORATH, F-O F. A., 509
- MORAVIA (Czechoslovakia), 141
- MORELLO, W Cdr F. V., 349
- MORETON-IN-THE-MARSH; *see* BRITISH AIR FORCE, STATIONS
- MORGAN, F-Lt J. C. H., 327
- MORISON, P-O K. C., Plate p. 638
- MORISON, S. E., 262*n*, 281*n*
- MORLAIR AIRFIELD (Map p. 504), 459
- MOROCCO (Map p. 412), 24, 411, 412; Anglo-American landings in, 379; anti-submarine patrols from, 618
- MORRISON, F-Sgt J. McA. (Plate p. 143), 344
- MOUNT BATTEN; *see* BRITISH AIR FORCE, STATIONS
- MOWATT, F-O W., 604
- MSUS (Maps pp. 61, 212), 73, 213, 215, 248; No. 3 Squadron at, 210
- MUDDLE, F-O J. W., Plate p. 638
- MUELLER, W-O P. J. O., 280, 289, 419
- MUKHEISIN; *see* BIR MUKHEISIN

- MULHEIM (Map p. 480), 325, 484-5
 MULHOLLAND, W Cdr N. G., 180, 249
 MULLIGAN, F-Lt A. R., 37
 MUNCHEN GLADBACH (Maps pp. 318, 480), 329; attacked 593, 602-3
 MUNICH (Map p. 318), 10; attacked, 469, 495-6, 597-8, 599, 659
 MUNSTER (Map p. 318), 184
Munsterland, German merchantman (Plate p. 302), 277
 MUQUIBILA AIRFIELD (Map p. 90), 93
 MURDOCH, Air Cmdr A. M., 152
 MURMANSK (Map p. 296), 295
 MURRAY, Sqn Ldr E. W., 219
 MURRO DI PORCO, CAPE (Map p. 565), 562
 MUSELIER, Vice-Admiral, 25
 MUSGRAVE, F-O E. L., 505-6
 "MUSKETRY" OPERATION; see BRITISH AIR FORCE, COASTAL COMMAND, tactics
 MUSSOLINI, Benito, 220n, 411n, 635; forced resignation of, 576
 NAMUR (Map p. 318), 20
 NANKERVIS, F-Lt J. K., 272
 NANTES (Map p. 13), 460
 NAPLES (Maps pp. 258, 565), 385, 398, 576, 580; attacked, 226, 567
 NARVIK (Map p. 296), 18, 418
Narvik-Class German destroyers, 444, 626, 627
 NASH AND THOMPSON REAR TURRET, Plate p. 622
National Zeitung, 479n
 NAZE, THE (Map p. 278), 612, 615
 NEHRING, General, 260, 367
 NEILL, P-O G. A., 254
Nestler, British merchantman, 43
 NETHERLANDS; see HOLLAND
 NEWELL, F-Lt J. W., 519
 NEWFOUNDLAND (Map p. 270), 414, 415, 432
 NEWLYN (Map p. 13), 292
 NEWPORT (U.K.), 527
 NEW ZEALAND, 262, 395, 534; reaction to Greek campaign, 86; and Empire Air Training Scheme, 110, 530n, 531, 533
 NEW ZEALAND AIR FORCE, projected number of EATS squadrons, 110n; attendance at operational training units in Britain, 302n, 547; location of Britain personnel reception centre, 529; training of aircrew under Empire Air Training Scheme in Canada, 531
 —No. 12 PERSONNEL RECEPTION CENTRE, 551
 —SQUADRONS: No. 485, 135, 136, 137, 341, 346, 347, No. 487, 456-7, 459, 507, No. 489, 612, 613, 617
 NEW ZEALAND ARMY, 204, 206
 —NEW ZEALAND CORPS, in Tunisian campaign, 404, 405
 —2ND NEW ZEALAND DIVISION, 250; in Crusader operation, 199, 201-2; at Alamein, 370, 374, 376; in Tripolitanian campaign, 400
 —BRIGADES: 4th, 205, 5th, 205, 6th, 205
 NIBEIWA (Map p. 61), 58
 NICHOLS, Sqn Ldr A. W., 638
 NICHOLSON, Sqn Ldr B. W., 314
 NICOSIA (Cyprus; Map p. 258), 568
 NICOSIA (Sicily; Map p. 565), 575
 NIEDERHEINISCHE HUTTE STEEL WORKS (Duisburg), 327
 NIGHT FIGHTING; see BRITISH AIR FORCE, FIGHTER COMMAND
 NILE DELTA (Map p. 58), 196, 220, 221, 238n, 356, 366, 370, 385, 395, 579
 NIPPS RAILWAY WORKSHOPS (Cologne), 322
 NITSCHKE, P-O R. H., 209
 NOFILIA AIRFIELD (Map p. 399), 383
 NORDERNAY (Maps pp. 278, 318), 171, 273
 NORDSEE WERKE SHIPYARDS (Emden), 317
 NORFOLK, 355, 452
 NORMAN, W Cdr R. A. (Plate p. 622), 606; estimate of, 648
 NORRIS-SMITH, Sqn Ldr D. L., 338
 NORTH, F-Lt H. L., 347, 348
 NORTH COATES; see BRITISH AIR FORCE, STATIONS
 NORTH CAROLINA, 263
 NORTH CAPE (Map p. 296), 609
 NORTHCOTT, Lt-Gen Sir John, 7n
 NORTHERN TRANSIT; see ICELAND-FAEROES
 NORTH FORELAND (Map p. 342), 348, 352, 353
 NORTHOLT; see BRITISH AIR FORCE, STATIONS, WINGS
 NORTH SEA (Maps pp. 13, 342), 11, 12, 18, 266, 269, 271, 290, 315, 322, 481, 610, 616, 642, 644, 646, 661; RAF attacks German ports on, 306; German shipping losses in, 611n
 NORTH WEALD; see BRITISH AIR FORCE, STATIONS
 NORTH-WEST AFRICAN COASTAL AIR FORCE; see MEDITERRANEAN AIR COMMAND
 NORTH-WEST AFRICAN STRATEGICAL AIR FORCE; see MEDITERRANEAN AIR COMMAND
 NORTH-WEST AFRICAN TACTICAL AIR FORCE; see MEDITERRANEAN AIR COMMAND
 NORTH-WESTERN APPROACHES (Map p. 13), 43, 44, 149, 444, 629, 633; U-boat activity in, 48
 NORWAY, 35, 77, 151, 155, 171, 269, 272, 275, 281, 287, 295, 334, 380, 610; campaign in, 17-18, 21, 22, 86, 171-2; British mine activity, 190, 593; U-boats based in, 264n; Coastal Command operations, 280, 417, 420, 612-17; Air Ministry plans attacks on, 310; importance of Lubeck to, 311; special requirements under Empire Air Training Scheme, 530; German shipping losses round, 611
 NORWICH (Map p. 342), 339n
 NOVA SCOTIA, 414, 427, 433
 NOVOROSSISK (Russia), 391
 NUREMBERG (Map p. 318), attacked, 495-6, 497 596-7, 661-2
 OAKLEY, F-Lt R. A., 50
 OBAN; see BRITISH AIR FORCE, STATIONS
 OBERHAUSEN (Map p. 480), 325, 484-5
 OBOE; see RADAR, BRITISH
 OBRESTAD (Map p. 278), 614
 O'BRIEN, F-O V. K., 256, 383
 O'CONNOR, Sqn Ldr B. R. D., 614, 616, 617
 O'CONNOR, Gen Sir Richard, 56, 60, 62, 63
 OGLET NEFATIA AIRFIELD (Map p. 399), 403
 OLDENBURG (Maps pp. 318, 656), 605
Ole Jacob, German tanker, 166
 OLIVE, W Cdr C. G. C., 20, 35, 145, 338
 OLYMPUS, MOUNT (Map p. 81), 78
 O'NEIL, F-Lt G. C. W., 400
 O'NEILL, Sqn Ldr E. H., 186
 OPERATIONAL RESEARCH, in RAF, estimate of, 177n
 OPPAU (Map p. 318), 174
 ORAN (Map p. 412), 88, 379, 409, 411, 412, 413, 563; attacked by British Navy, 29
 "ORDERLY" OPERATION; see BRITISH AIR FORCE, COASTAL COMMAND
 ORFORDNESS (Maps pp. 318, 504), 512
 ORINOCO RIVER (Map p. 270), 294
Orkan, Polish destroyer, 622
 ORKNEY ISLANDS (Map p. 278), 514
Orontes, British transport, 7, 57
 ORTEGAL, CAPE (Map p. 13), 431
 OSBORNE, F-O A. G., 464
 OSNABRUCK (Map p. 318), 176n, 333
 OSTEND (Maps pp. 132, 342), 137, 343, 352; attacked, 188, 459
Ostia, Italian merchantman, 373
 OSWEICIM (Poland), 141
 OTTAWA, 107, 109, 537; Empire Air Training Scheme conferences at, 2-3, 530-5
 OUTER APPROACHES, 626
 "OVERLORD" OPERATION (Invasion of Europe), 389n, 580, 650
 OXLADE, Sqn Ldr A. G., 518
 PACE, F-O H. G., 217n
 PACHINO AIRFIELD (Map p. 565), 571, 573; Nos. 3 and 450 Sqs at, 574, 575
 PACIFIC OCEAN, 115, 117, 128, 144, 165, 185, 219, 262, 525, 627; War in, 120, 303, 349, 527, 553; effect of reverses on No. 451 Sqn, 250, on Australian Air Force overseas contribution, 524
 PACIFIC, SOUTH-WEST, 394, 538, 629; fighter reinforcement of, 502
 PADERBORN (Map p. 318), 460
 PADRES, appointed to Australian Air Force in Middle East, 390
 PAGE, Rt Hon Sir Earl, Plate p. 526
 PALERMO (Maps pp. 258, 412), 226, 385, 397, 398, 407, 561; captured, 574
 PALESTINE (Plate p. 47), 54, 89, 92, 100n, 104, 193, 248, 250, 359, 568; 1916-18 campaign in, 52; Allied forces in, 87
 PALMER, F-O I. S. H., 381

- PALMER, F-Lt J. J., 141
 PALMYRA (Map p. 90), 87, 92, 93, 95*n*, 104
 PANITZ, W Cdr G., 518, 520, 521; combat report, 517
 PANTELLERIA (Maps pp. 258, 565), 572; capture of, 565-6
Panuco, Italian tanker, 368
 PAPAGOS, Field Marshal A., 78
 PARAMYTHIA AIRFIELD (Map p. 81), 83, 84
 PARATROOPS, in Sicily, 571
 PARIS (Maps pp. 13, 31), 142, 306, 308, 309; declared open city, 23
 PARK, Air Chief Marshal Sir Keith, 388
 PARKER, F-Sgt G. E., 47
 PARKER, Sgt T. D., Plate p. 78
 PARKINSON, F-Lt C. H., 239, 251, 362; combat report, 362*n*
 PARR, F-Lt J. G., 66
 PAS DE CALAIS (Maps pp. 13, 132, 342), 136, 142, 346
 PASSERO, CAPE (Map p. 565), 84, 562, 572
 PATHFINDER FORCE; *see* BRITISH AIR FORCE, Bomber Command
 PATKIN, F-Lt L. B., 604
 PATROLS; *see* BRITISH AIR FORCE, Coastal Command
 PATTERSON, F-Lt G. G., 362, 363, 381, 382
 PATTON, General G. S., 574
 PAXOI ISLAND (Map p. 81), 256
 PAYNTER, F-Lt M. H., 624, 633
 PEARCE, Gp Capt C. W. (Plate p. 14), 6, 14, 16, 20, 25, 27, 39, 42, 43; comds No. 10 Sqn, 12; first definite attack on U-boat, 22-3
 PEARL HARBOR, 126, 165, 185
 PEENEMÜNDE (Map p. 318), 602; attacked, 599-600
 PEGASUS ENGINES, deficiencies of in Coastal Command, 632-3
 PEGG, W-O J. A., 47
 PERISE, Air Chief Marshal Sir Richard, 299
 PELAGIE ISLANDS (Maps pp. 399, 565), 565
 PELLY, Gp Capt B. R., 58, 59, 98, 99
 PELLORO, CAPE (Map p. 565), 578
 PEMBROKE DOCK; *see* BRITISH AIR FORCE, STATIONS
 PENAS, CAPE (Map p. 13), 633
 "PERCUSSION" PATROLS; *see* BRITISH AIR FORCE, Coastal Command
Periwinkle, British corvette, 48
 PERRANPORTH; *see* BRITISH AIR FORCE, STATIONS
 PERRIN, W Cdr J. R. (Plates pp. 46, 78), 70, 73, 89, 95
 PERSIA (Map p. 357), 87, 193; British-Russo entry, 193*n*; supply of oil to Middle East Comd, 356
 PERSIAN GULF (Map p. 357), 54, 356
Pertusola, Italian merchantman, 367
 PÉTAIN, Marshal, 23
 PETERS, W-O K. W. M., 481
 PETHERICK, Sqn Ldr A. C. H., 421
 PHILIP OF MACEDON, 650
 PHILIPS RADIO FACTORY (Plate p. 334), 353, 456-7
 "PHONEY WAR", 9, 17
 PHOTOGRAPHIC RECONNAISSANCE, development of, 30-2; *see also* BRITISH AIR FORCE, PHOTOGRAPHIC RECONNAISSANCE UNIT
 PICHON (Map p. 399), 406
 PICKLES, Sqn Ldr E. L., 588
 PILCHER, Sqn Ldr J. M., 617
 PILSEN (Map p. 318), 486, 497-8
 PINDUS MOUNTAINS (Map p. 81), 82, 83
 PIRAEUS (Map p. 81), 85
Pisani, German transport, 259*n*
 PISIDA (Map p. 399), 401
Pistoia, Italian merchantman, 397*n*
 PITSEA (Map p. 504), 508
 PLANCOET (Map p. 504), 520
 PLATT, Gen Sir William, 64*n*
 PLENEUF (Map p. 504), 517, 518
 PLOESTI (Rumania), 238*n*
 PLOUDANIEL (near Brest), 23
 "PLOUGH" OPERATION, 268*n*
 PLYMOUTH (Maps pp. 13, 42; Plate p. 175), 15, 21, 22, 27, 29, 40, 49, 151, 153, 159, 264, 268, 511; attacked, 39, 44
 PLYMOUTH, CHIEF CONSTABLE OF, 16
 PLYMOUTH SOUND (Map p. 13), 25, 45*n*, 272; mined by German aircraft, 44
 POCKLEY, Sqn Ldr H. G., 273, 293, 418; estimate of, 277-8
 PODGER, Gp Capt I. S. (Plate p. 14), 6, 23, 29, 155, 156; air-sea rescue by, 44
 "POINTBLANK" DIRECTIVE (Combined Bombing Offensive on Germany), 476
 POISSY (Map p. 318), 309
 POIX AIRFIELD (Map p. 504), 509, 510
 POLAND, 77, 170; Resistance movement, 141; special requirements under Empire Air Training Scheme, 530
 POLISH AIR FORCE, liaison with R.A.F., 479*n*
 —SQUADRONS: No. 304, 274*n*, 293*n*, No. 307, 521
 POLISH NAVY, in Battle of Atlantic, 622
 POLITZ (Map p. 318), 465
 PONT DU FAHS (Map p. 399), 402
 PONTE OLIVO AIRFIELD (Map p. 565), 561
 PONTORSON (Map p. 504), 517
 POOLE; *see* BRITISH AIR FORCE, STATIONS
 POPE, Gp Capt V. A., 100, 101, 198
 POPERINGHE (Map p. 132), 131
 POPTON POINT (Milford Haven), 158
 PORTLAND BILL (Map p. 504), 516, 517
 PORTREATH; *see* BRITISH AIR FORCE, STATIONS
 PORT TEWFIK (Map p. 58; Plate p. 14), 57
 PORTUGAL (Map p. 275), 421, 425, 642*n*; grants Allies air base in Azores, 621
 POTEZ AIRCRAFT FACTORY (Méaulte), 508
 POUND, Admiral of the Fleet Sir Dudley, 23
 POWELL, Sqn Ldr M., 381
Pozarica, Italian tanker, 260
 PRAGUE, 141
 PRATT, F-Lt R. G., 520
 PRATT AND WHITNEY ENGINES, 633
 PREDANACK; *see* BRITISH AIR FORCE, STATIONS
Prinz Eugen, German cruiser (Plate p. 270), 155, 156, 159, 186, 613; breaks out from Brest, 265-8; attacked, 279-80
 PRIOR, W Cdr R. H., 397
 PRISONERS, in Tunisian campaign, 409
Proserpine, Italian tanker, 372, 373
 PROTIVILLE AIRFIELD (Map p. 399), 563
Pukliola, Italian merchantman, 260
 PWLLHELLI (Map p. 342), 340
 PYRENEES MOUNTAINS (Map p. 13), 133
 Q.180, British naval launch, 292
 QARAT EL HIMEIMAT (Maps pp. 233, 369), 246-7, 256
 QASABA AIRFIELD (Map p. 61), 99; built under 1936 Treaty, 53*n*; No. 3 Sqn at, 58
 QATTARA DEPRESSION (Map p. 233), 245
 QRENDI; *see* BRITISH AIR FORCE, STATIONS
 QUATAFIYA AIRFIELD (Map p. 233), 371
 QUEBEC CONFERENCE, 476, 561
Queen Elizabeth, British battleship, 226
 QUONSET (Map p. 270), 287
 RABAT (Map p. 412), 24
 RABIA (Maps pp. 61, 212), 59, 102
 RADAR, BRITISH, network covers south-eastern England, 1939-40, 11; superiority of, during Battle of Britain, 34; airborne, air-to-surface vessel (ASV), 38, 41, 153, 154*n*, 160, 274, 286, 292, 410, 416, 421, 432, 436-7, 585*n*, identification-friend or foe (IFF), 142, aircraft interception set (AI), 145, 516, "Gee", 298, 309, 311, 322, 323, 324*n*, 448, H2S (Plate p. 623), 410*n*, 436*n*, 448, 471, 593, Oboe, 477, "Window", counter to German radar, 585-6, 595, 635, priorities for, 585*n*; coast-watching, jammed by Germans, 267; employment of, saves convoy, 432; Magnetron and Klystron valves, 448; importance to pathfinder technique, 448
 —GERMAN, 267, 585; for air defence, 582; early-warning (Freya), 10, 499, 582, 584, 596; fighter direction (Würzburg), 582, 585, (Benito), 584; airborne aircraft interception, 582, 585
 RADIO COUNTER-MEASURES; *see* BRITISH AIR FORCE
 RADIO DIRECTION FINDING; *see* RADAR
 RAEDER, Grand Admiral E., 12, 33, 34, 37, 171*n*, 189*n*, 220, 268*n*, 420; on importance of Tunisia, 385*n*
 RAIDS, 1,000-BOMBER, 1942, by Bomber Command, on Bremen, 284*n*, 316, Cologne, 321-2, 482*n*, Essen, 325
 RAMCKE, Gen H., 220
 RAMLEH AIRFIELD (Map p. 90), 66
 "RAMROD", code name of Fighter Command operation, 129
 RANDALL, F-O F. A., 602
 RANDAZZO (Map p. 565), 575, 577
 RANKIN, Sqn Ldr R., 362, 381
 RAS AGEDIR (Map p. 399), 401

- RAS GIBEISA (Map p. 233), 246
 RATCLIFFE, W-O V. P., 517, 518; estimate, 519
 RATHENOW (Berlin suburb), 639
 RATTEN, W Cdr J. R., 349, 352, 503, 505, 507, 509, 510; estimate, 508
Ravello, Italian merchantman, 366, 367
 RAWLINSON, Gp Capt A. C. (Plates pp. 46, 78), 59, 93, 197
 RAYAK (Map p. 90), 92, 93, 250; airfield at, 87, 89, 95, No. 451 Squadron to, 210
 RECHNER, W Cdr R. M., 219
 RECRUITING; see EMPIRE AIR TRAINING SCHEME
 RED CROSS, and prisoners of war, 526
 REDHILL; see BRITISH AIR FORCE, STATIONS
 RED SEA (Map p. 357), 54, 57, 356
 REES, F-Lt D., 591, 600
 REGGIO EMILIA (Map p. 590), 591
Regia Aeronautica; see ITALIAN AIR FORCE
Reginaldo Giuliani, Italian submarine, 293n
 REICHSTAG, 33
 REID, Sgt F. B., 217
 REID, F-Lt L. S., 239, 251, 362
 REINICKENDORF (Berlin suburb), 639
 REMSCHEID (Map p. 480; Plate p. 463), 488-9
 RENAULT FACTORY (Plate p. 302), at Paris, 308-9
 RENNES (Map p. 504), 512, 517, 518; airfield at, 509
 REPATRIATION; see AUSTRALIAN AIR FORCE; EMPIRE AIR TRAINING SCHEME
 REYKJAVIK; see BRITISH AIR FORCE, STATIONS
 REYNAUD, P., 23
 REYNOLDS, F-O C. I., 642
 REYNOLDS, W Cdr R. W., 183
Rhakotis, German merchantman, 421
 RHEYDT (Map p. 480), 602-3
 RHINELAND (Map p. 318), 477; Bomber Command plans, 170; attacked, 306, 466-8, 581, 602
 RHINE RIVER (Maps pp. 318, 504), 172, 183, 321, 326, 329, 331, 332, 467, 469, 479, 483, 491, 594
 RHODE ISLAND, 287
 RHODES (Maps pp. 81, 258) 81, 84; British propose seizure, 79
 RHODESIA, 99n, 303, 552; Australian drafts for training in, 107, 112; Australians trained in, 112
 "RHUBARB", code name of Fighter Command operation, 129
 RICE, AVM E. A. B., Plate p. 622
 RICE, W Cdr R. S., 629; estimate, 632
 RICHARDS, Gp Capt A. X., 152, 271, 276
 RICHARDSON, F-O N. W., 189
 RICHMOND, W Cdr W. D., 15
 RICKARDS, F-Lt J. P., 287, 294
 RIDOTTA EL GAFIA (Map p. 212), 210, 211
 RINTELEN, Gen E. von, 259, 260, 367, 373n
 RITCHIE, F-Lt A. V., 332
 RITCHIE, Gen Sir Neil 235n, 248
 RIVERSDALE AGREEMENTS; see EMPIRE AIR TRAINING SCHEME
 RIVAN AIRFIELD (Map p. 357), 356, 357
 "ROADSTEAD", code name for Fighter Command operation, 129
 ROBERTS, F-Lt A. C., 133
 ROBERTS, F-Lt J. P. (Plate p. 622), 628-9
 ROCHESTER (Map p. 13), 6
Rochester, British sloop, 26
 ROCKETS, German, long-range V.2 (Vergeltungswaffen), 599n; projectiles, used by Coastal Command, 622
 "RODEO", code name for Fighter Command operation, 129
Roland (UJ1708), German escort trawler, 615
 ROMAN CATHOLIC CHURCH, 338n
 ROME (Maps pp. 258, 565), 367, 373n; attacked, 576
 ROMMEL, Field Marshal E., 102, 106, 219, 229, 254n, 289, 379, 385, 386, 390, 391, 409; in Second British Libyan campaign, 200, 206, 207, 209, 210, 213; in Second German African campaign, 214, 215, 220; in Third German African campaign, 230, 232, 235, 236, 238, 240-1, 242, 243, 244, 245, 248; at Alamein line, 246, 247, 252, 253, 256, 257, 259 *et seq.*, 365-6, 367; in battle of Alamein, 371, 373, 375; in Tripolitanian campaign, 383, 400, 401; in Tunisian campaign, 402, 403; his views on defence of Sicily, 577
Rondine, Italian tanker, 367
 ROOSEVELT, Franklin D., as President of United States of America; 238n; his views on bombing of civilians, 170; Britain appeals to, for very-long-range aircraft, 416; at Casablanca conference
- ROOSEVELT, Franklin D.—*continued*
 reaffirms Europe-first strategy, 475; at Quebec conference approves plan for invasion of Europe, 580
 ROSCH, Maj-Gen, 386n
 ROSE, W Cdr B. F., 268, 280
 ROSE, F-O G. W., 371
 ROSE, W Cdr I. F. D'A., 231, 255
 ROSH PINNA AIRFIELD (Map p. 90; Plate p. 78), No. 3 Squadron to, 93
 ROSS, F-O E. H., 17, 37
 ROSS, Sqn Ldr J. MacK., 252
 ROSS, Sgt J. R., Plate p. 143
 ROSSITER, W Cdr G. G., 428, 430-1, 434, 629
 ROSTOCK (Map p. 318; Plate p. 302), 314, 320, 646; listed for attack, 299; attacked, 312-3, 339n, 499; reasons for Bomber Command's success, 313
 ROTONDA HARMET (Map p. 233), 234
 ROTTERDAM (Maps pp. 318, 504), 510, 610, 612; attacked, 187, 458
 ROUEN (Map p. 132), 137
 ROWE, F-Lt W. G., 422, 425
 ROWLANDS, F-Lt H. R., 101
 ROYAL AIR FORCE; see BRITISH AIR FORCE
 ROYAL AUSTRALIAN AIR FORCE; see AUSTRALIAN AIR FORCE
 ROYAL BATH HOTEL (Bournemouth), 124
 ROYAL CANADIAN AIR FORCE; see CANADIAN AIR FORCE
 ROYAL NEW ZEALAND AIR FORCE; see NEW ZEALAND AIR FORCE
 RUHR (Maps pp. 318, 480), 37, 151, 298, 311, 326, 332, 457, 600, 610, 635, 640, 647, 660; listed for attack, 170, 476; attacked, 1940, 1942, 1942, 306, 322 *et seq.*, 1943, 466-7, 602; battle of Ruhr, 1943, 476, 479 *et seq.*, 484 *et seq.*, 489 *et seq.*, 495, importance of Obote in, 476-7, diversionary attacks, 496, British success, 581, effects of Bomber Command losses in, 593; problem of accurate bombing, 322, 465; importance of, 476
 RUHR RIVER (Maps pp. 318, 480), 322, 483
 RUHR VALLEY (Maps pp. 318, 480), dams in, listed for attack, 492, attacked, 493-4; destruction in, 495
 RUMANIA, 69n; and Anglo-French guarantee, 76, 77; and Germany, 78
 RUNDO (Map p. 278), 612
 RUSSELL COURT (Bournemouth) 124
 RUSSELL, F-O I. B. N., 20
 RUSSELL, W. B., 92n
 RUSSIA, 146, 176, 380, 392, 475n, 502, 560; German campaigns in, 86, 117, 129, 193, 419, 617; assistance from British air force activity, 229, 295, 311, 336, 417, 581-2, 593, 612; German air force in, 229, 361; importance of Persian Gulf to, 356
 RUSSIAN AIR FORCE, 297, 345
 RUSSIAN ARMY, 391
 RUTTENSCHIED (Essen suburb), 483
 RUWEISAT RIDGE (Maps pp. 233, 369), 245 *et seq.*, 253, 254
 RYANHART, Sgt S. J., Plate p. 639
 RYAN, LOCH (Map p. 13), 42
 RYDER, Lady Frances, 125n
- SAAR (Map p. 300), 170
 SAARBRUCKEN (Map p. 318; Plate p. 302), 330-1, 661
 St CATHERINE'S POINT, 355
 St EVAL; see BRITISH AIR FORCE, STATIONS
 St GEORGE'S CHANNEL (Map p. 13), 6, 146
 St GOWAN'S HEAD (Map p. 13), 272
 St INGELVERT (Map p. 342), 346
 St JEAN AIRFIELD (Maps pp. 90, 258), 250, 357, 568
 St MALO (Map p. 13), 21
 St MEEN (Map p. 504), 517
 St NAZAIRE (Maps pp. 13, 275, 423), 27, 416n; U-boat base at, 149, 472; commando attack on, 274; air attacks on, 189, 473-4, 509n
 St OMER (Maps pp. 132, 342), 131, 348, 352, 506, 509; attacked, 134, 135, 346
 St OMER-FORT ROUGE AIRFIELD (Map p. 504); attacked, 136, 352, 458, 505, 512
 St POL (Map p. 504), 510
 St UNIAC (Map p. 504), 517
 St VALERY-EN-CAUX (Map p. 132), 133
 St VALERY-SUR-SOMME (Map p. 342), 341
 St VINCENT, CAPE (Maps pp. 282, 412), 47, 431
Saladin, British destroyer, 634

- SALALA AIRFIELD (Map p. 357), 357
 SALONIKA (Maps pp. 81, 258), 78
 SALUM (Maps pp. 61, 203, 212; Plate p. 46), 63, 64, 65, 66, 73, 74, 86, 101, 104, 105, 107, 200, 201, 207, 209, 210, 376, 378
 SALUM, GULF OF (Map p. 61), 64
 SAMSON, Sqn Ldr C. S., 518, 521
 SANAMEIN (Map p. 90), 91
 SANDERSON, F-Lt J. G., 362
 SANDS, Sqn Ldr D. O., 334
 SANDS, Sqn Ldr K. R., 209
 SANGATTE (Map p. 504), 506, 509
San Giorgio, Italian cruiser, 55*n*
 SAN MARIA DI LEUCA, CAPE (Map p. 565), 358
 SAN POLO D'ENZA (Map p. 590), 591-2
 SANTANDER (Maps pp. 13, 153), 155, 273, 283, 284, 293*n*
 SANTORO, G., 55*n*, 84*n*
 SARDINIA (Maps pp. 258, 412), 30, 32, 289, 386, 560, 561, 562, 579; Mediterranean Air Command operations against, 566, 567
 SARK (Map p. 504), 511
 SAUNDERS, F-O J. H. W. (Plate p. 78), 69, 89, 106
 SAUNNU (Map p. 212), 215
 SAVILLE, W Cdr D. T., 250, 360, 381
 SBEITLA (Map p. 399), 402, 403
 SCANDANAVIA, 171
 SCAPA FLOW (Map p. 278), 11, 16, 171, 268*n*
 SCELEIDIMA (Map p. 61), 72, 73
 SCHAEFFER, Sqn Ldr H. H., 213
Scharnhorst, German battle cruiser, 11, 48, 49, 154, 159, 186, 189, 265-9, 311, 499, 609, 613
 SCHIERMONIKOOG (Map p. 278), 279
 SCHIESS DEFRIES FACTORIES (Dusseldorf), 328
 SCHILLIG ROADS (Map p. 278), 10*n*
 SCHIPOL (Map p. 318), 187
 SCHIPOL AIRFIELD (Map p. 504), 512
 SCHNIEDER WORKS (Le Creusot), 310-11
Schnorkel, 628
 SCHOTT AND GENOSSEN FACTORY (Jena), 460-1
 SCHRADER, Sgt E. H., 142
 SCHWEINFURT (Map p. 318), 299, 650, 661, 662
 SCHWELM (Map p. 480), 325
 SCHWERTE (Map p. 480), 176*n*
 SCIACCA AIRFIELD (Maps pp. 399, 565), 566
 SCILLY ISLES (Maps pp. 13, 275, 282), 16, 25, 26, 28, 38, 274, 285, 443, 520, 618
 SCOGLITTI (Map p. 565), 561
 SCOTLAND, 9, 11, 38, 149, 167, 266
 SCOTT, Sgt D., Plate p. 78
 SCOLLER, F-Sgt C., 279
 SCUSCUTBAN AIRFIELD (Map p. 357), 357
Scylla, British cruiser, 421
Sealion, British submarine, 266
 "SEALION" OPERATION, 34*n*
 SEARCHLIGHTS, German employment of, 314-15, 320, 326
 "SEASLUG" OPERATION; see BRITISH AIR FORCE, COASTAL COMMAND
 SEBALA AIRFIELDS (Map p. 399), 563
 SEDADA (Map p. 399), 401
 SEDAN, 54
 SEDJENANE (Map p. 399), 402
 SEGNAI (Map p. 233), 225
 SEINE ESTUARY (Map p. 342), 344
 SELSEY BILL (Maps pp. 318, 342, 504), 355, 511
 SENIOR, F-Lt R. K., 620
Sestieria, German merchantman, 366
 SEXAX (Maps pp. 258, 399), 404, 405, 406, 566
 SHAFESBURY (Map p. 504), 518
 SHABA; see BRITISH AIR FORCE, STATIONS
 SHAKESPEARE BEACH (Dover), 464
 SHALLUFA; see BRITISH AIR FORCE, STATIONS
 SHANNON, Sqn Ldr D. J., 494
 SHAW, P-O R., 218
 SHEEN, W Cdr D. F. B., 11, 32, 35
 SHEPHERZEN TRACK (Map p. 233), 243
 SHEIKH MESKINE (Map p. 90), 88, 91
 SHETLAND ISLANDS (Maps pp. 278, 282), 7, 157, 279, 287, 431, 616
 SHETLAND-FAEROES CHANNEL, 294
 SHIPHARD, F-Lt M. C., 252
 SHOREHAM; see BRITISH AIR FORCE, STATIONS
 SHORT BROS., agree to modify Sunderland to take Pratt & Whitney engines, 633
 SHORT HARLAND, 270*n*
 SICILIAN NARROWS (Map p. 258), 30, 289, 397, 566
 SICILY (Maps pp. 258, 399, 565; Plate p. 509), 84, 196, 219, 228, 230, 231*n*, 362*n*, 382, 397, 407, 408, 413, 431; German air force in, 69, 87, 214, 225, 230*n*, 386; British operations over, 255, 398; campaign in, 406, 560-2, 562-80
 SIDI ABD EL RAHMAN (Maps pp. 233, 369), 244, 246, 364, 365, 372, 374
 SIDI AZEIZ (Maps pp. 61, 212), 74, 205, 210
 SIDI AZEIZ AIRFIELD (Map p. 233), 202, 204, 209, 242, 375
 SIDI BARRANI (Maps pp. 212, 233), 59, 102, 105, 106, 197, 200, 242, 249, 255, 361, 362, 363, 375; airfield at, 53*n*, 56, 74, 86, 198, 237, 238; capture of, 60, 62, 65
 SIDI BOU ZID (Map p. 399), 403
 SIDI BREGHISC (Map p. 233), 225
 SIDI HANEISH AIRFIELD (Maps pp. 61, 233), 73, 74, 95, 104, 106, 197, 225, 375
 SIDI MAHMUD (Map p. 61), 73, 74
 SIDI MUFTAH (Map p. 233), 232
 SIDI OMAR (Maps pp. 203, 212), 199, 200, 204; airfield at, 202
 SIDI REZEGH (Maps pp. 203, 212, 233), 199, 200, 202, 204, 206, 241, 242; battle of, 205
 SIDON (Map p. 90), 89, 92, 93
 SIEDEMAN, Lt-Gen., 386*n*
 SIEMENS ELECTRICAL WORKS (Berlin), 647
 SIEMENSTADT (Berlin suburb), 602
 SIERRA LEONE (Map p. 270), 46, 159, 162
 SILLCOCK, F-Sgt R. R., 287
 SILVA, F-O G., 328
 SIMES, Sgt R. H., 201
 SIMETO RIVER (Map p. 565), 574, 575
 SIMPSON, F-Lt A. B., 606, 646
 SIMPSON, F-Lt K. M., 440
 SINCLAIR, Rt Hon Sir Archibald, Plate p. 526
 SINCLAIR, Sgt W., Plate p. 638
 SINGLETON, Sqn Ldr G. O. (Plate p. 430), 434-5, 438
 SIRTE (Maps pp. 258, 399), 400
 SIRTE, GULF OF (Maps pp. 61, 212, 399), 67, 71, 72, 81
 SISMEY, F-Lt F. L., 359
 SIWA (Map p. 61), 199
 SKAGERRAK (Map p. 278), 279, 280
 SKEABRAE; see BRITISH AIR FORCE, STATIONS
 SKELLIG LIGHT (Map p. 13), 48
 SKELLINGTHORPE; see BRITISH AIR FORCE, STATIONS
 SKINNER, F-Lt H. W., 438, 618
 SKODA ARMS WORKS (Pilsen), 497-8
 SKY-MARKER FLARES; see FLARES, sky-marker
 SLEE, Gp Capt L. C., 310*n*, 500*n*
 SLESSOR, Marshal of the RAF Sir Kenneth, 416, 422
 SLOVAKIA, 141
 SLY, F-Lt R. H. C. (Plates pp. 111, 143), 229, 341, 344, 345, 348
 SMITH, Pte C., 92*n*
 SMITH, W Cdr D. H., 251, 510
 SMITH, W Cdr E. C., 418, 429, 430, 434, 629
 SMUTS Field Marshal Rt Hon J. C., 169
 SNELL, F-Sgt F. W., Plate p. 638
 SOCOTRA AIRFIELD (Map p. 357), 357
 SOEST (Maps pp. 318, 480), 176*n*
 SOFAFI (Maps pp. 61, 233), 58, 60, 62, 63, 243, 244
 SOLENT, THE (Map p. 342), 355
 SOMALILAND, BRITISH (Map p. 357), 54
 SOMALILAND, FRENCH, 76
 SOMME RIVER (Map p. 504), 23; estuary, 507, 510
 SOPLEY (Map p. 504), 516
 SORMAN AIRFIELD (Map p. 399), 402
 SORPE DAM (Maps pp. 318, 480), 493-4
 SOUSSE (Maps pp. 399, 412), 382, 406, 566
 SOUTH AFRICA, 29; representation at May 1942 air training conference, 530*n*
 SOUTH AFRICAN AIR FORCE, 74, 211, 363, 392; in Kenya, 54; attaches pilots to R.A.A.F., 71, 98, 197; attaches Lodestar to No. 1 Air Ambulance Unit, 102, 198; promotion policy, 127; Bostons in North African campaigns, 224, 225, 231, 234, 240, 246-7, 247-8, 254-5, 256-7, 365, 376, 400; compared to other Dominion air forces, 524
 —WINGS: No. 3 (light bomber), 196, 218, 363. No. 7 (fighter), 386, 403
 —SQUADRONS: No. 1, 195*n*. No. 2, 106, 195*n*, 196, 221*n*. No. 4, 221*n*. No. 12, 195*n*, 240*n*, 241-6, 363. No. 21, 195*n*, 363. No. 24, 100, 240*n*, 241-6, 363
 SOUTH AFRICAN ARMY: 1st Div, 240, 370
 SOUTHELD (Maps pp. 342, 504), 355; see also BRITISH AIR FORCE, STATIONS

- SOUTH-WESTERN APPROACHES (Map p. 13), 12, 37, 155, 439
 SPAATZ, General Carl, 388
 SPAFFORD, F-O F. M., 493
 SPAIN, 133, 151, 159, 161, 165, 283, 284, 293*n*, 419, 434, 438, 520, 610, 617
 SPEER, Albert, 628, 663
 SPENCE, W Cdr L. T., 211, 217*n*, 241
 SPENCE, W-O R. S., Plate p. 239
 SPEZIA (Map p. 590), 499-500, 592
 SPOOF RAIDS; *see* BRITISH AIR FORCE, BOMBER COMMAND, tactics
 SPURGIN, F-Lt A. L. M., 380
 STADLANDET (Map p. 278), 287
 STAFFORDSHIRE, 302
Stalag Luft III, 243*n*
 STALINGRAD, BATTLE OF, 391, 502, 635
Stangrant, British merchantman, 44
 "STARKEY" OPERATION, 513-14, 593
Starling, British sloop, 429*n*
 START POINT (Map p. 504), 517
 STAVANGER (Map p. 278), 615; attacked, 17
 STEEGE, Gp Capt G. H. (Plate p. 46), 62, 95, 97, 98, 224
 STELEY, Sqn Ldr C. W., 419
 STEPHENSON, F-Lt A. P., 362
 STETTIN (Maps pp. 31, 318), attacked, 498-9, 644, 654-5
 STEVENS, Sgt, Plate p. 335
 STEVENS, F-Lt J. H., 646
 STEVENS, Sqn Ldr R. N. B., 576
 STEVENSON, P-O J. W. B., 20
 STEVENSON, Sqn Ldr R. D., 264
 STEWART, Sqn Ldr D. A., 24
 STEWART, F-O N. G., 360
 STILO, CAPE (Map p. 565), 397
 STORRY, F-Lt C. G., 612
 STRAHAN, W Cdr P. E. C., 56
 STRANRAER; *see* BRITISH AIR FORCE, STATIONS
 STUART, F-Lt A. R., 135, 136, 137; escapes, 141
 STUDENT, Gen Kurt, 220
 STUMME, Gen, 367, 368
 STUTTGART (Map p. 318), 176*n*, 299, 495, 605, 650, 661; attacked, 329-30, 468-9, 496, 599, 639, 658-60
 SUBMARINE TACTICS, GERMAN, ITALIAN; *see* GERMAN NAVY; ITALIAN NAVY
 SUDA BAY (Map p. 81), 77
 SUDAN (Map p. 357), 52, 54, 64*n*
 SUEZ (Maps pp. 58, 258), 86, 112, 249
 SUEZ CANAL (Map p. 58), 54, 86, 87; air defence of, 55; mined by aircraft, 81
 SULLIVAN, F-Lt J. McD., 591
 SULLOM VOE; *see* BRITISH AIR FORCE, STATIONS
 SUMBURGH; *see* BRITISH AIR FORCE, STATIONS
 SUNDERLAND (Map p. 13), 35
 SUPPLY, of German-Italian forces in Africa, problems, 222, 226, 229, 252, 255, 256, 257, 259-60, 261, 289, 358-60, 362-3, 366-8, 372-3, 396, 398, 406
 SWAIN, F-Lt J. F., 287
 SWEDEN (Maps pp. 278, 296), 268, 281, 334, 602, 610; escape of Norwegian ships from, 280
 SWIFT, F-O N. F., 353
 SWIFT, F-Lt R. A., 362
 SWINDERBY; *see* BRITISH AIR FORCE, STATIONS
 SWITZERLAND (Map p. 590), 213
 SYDNEY (Nova Scotia; Map p. 270), 414, 433
 SYER, F-O G. V., 264
 SYLT (Map p. 318), 171, 647
 SYMONDS, F-Lt D. S., 587
 SYRACUSE (Maps pp. 399, 565), 561, 562, 572, 573, 574; captured, 571
 SYRIA (Map p. 90), 52, 76, 102, 193, 197, 210, 248, 379, 391; French Air Force in, 54, 89, 91-2, 93, 95*n*; British relations with, 86; campaign in, 87-95, R.A.F. in 87, 88*n*, 89, 91, 92, 93, 94, air lessons of, 95
 TACTICS; *see* ARMY COOPERATION; BRITISH AIR FORCE; GERMAN AIR FORCE
Tadorre, French trawler, 519
 TAIN; *see* BRITISH AIR FORCE, STATIONS
 TAINTON, F-Lt E. B., 135, 137*n*, 341
 TA KALI; *see* BRITISH AIR FORCE, STATIONS
 TAKORADI (Map p. 270), trans-African ferry route from, 55, 56, 193
 TALBENNY; *see* BRITISH AIR FORCE, STATIONS
 TAMET AIRFIELD (Map p. 399), 400
 TANGMERE; *see* BRITISH AIR FORCE, STATIONS
 TANKS, British compared to German, 220*n*
 TAORMINA (Map p. 565), 231*n*
 TAQA, EL (Maps pp. 233, 369), 247, 253, 261, 369
Tarantini, Italian submarine, 42*n*
 TARANTO (Maps pp. 258, 565), 253; Italian fleet reported at, 56
 TARGET INDICATOR BOMBS; *see* BOMBS, target indicator
 TARHUNA (Map p. 399), 401
 TASKER, W-O R. K. W., Plate p. 639
 TATOI (Map p. 81), 78
 TAUORGA (Map p. 399), 400
 TAUORGA-CHURGIA ROAD, 400
 TAYLOR, F-Sgt A. W., 274
 TAYLOR, Sqn Ldr G. R., 16
 TAYLOR, F-Lt H. H., 19
 TAYLOR, F-Lt J. L., 397
 TEBAGA, DJEBEL (Map p. 399), 404, 405
 TEBOURBA (Map p. 399), 409
 TECHNIQUE, BOMBING; *see* BRITISH AIR FORCE, BOMBER COMMAND
 TEDDER, Marshal of RAF Lord, 100, 112, 122, 255, 363, 390, 394, 567; on No. 3 Squadron, 88*n*, 98; becomes AOC-in-C Middle East, 97; problems posed by Australian regular and *Article XV* squadrons, 97-9; intervenes during operation "Battleaxe", 104; on cooperation with Army, 221*n*, 392; plans to deny supplies to Rommel, 358; plans air reorganisation of Mediterranean, 386; becomes C-in-C Mediterranean Air Command, 387, forces under command, 387-9; estimate of, 387
 TEGEL (Berlin suburb), 639
 TEL AVIV (Map p. 90), 89
 TEL EL AQQAQIR (Map p. 233), 374, 378
 TEL EL EISA (Map p. 233), 253, 254, 370
 TENNANT, Lt A. A., 74
 TEPELENE (Map p. 81), 82, 83
 TERESA (Map p. 565), 577
Tergeste, Italian merchantman, 368, 372
 TERRY, Sqn Ldr B. M., 375*n*
 TERSCHELLING ISLAND (Map p. 318), 187
 TEXEL (Map p. 278), 151, 609
 THALA (Map p. 399), 402
 THAMES ESTUARY (Maps pp. 132, 318), 171, 352, 508
 THERMOPYLAE LINE (Map p. 81), 85
 THIELE, Sqn Ldr K. F., 484
 THOLEN ISLAND (Map p. 504), 513
 THOMA, Gen von, 367
 THOMAS, Cpl, Plate p. 335
 THOMAS, Sgt M., Plate p. 430
 THOMPSON, Sgt B. M., 217*n*
 THOMSON HOUSTON FACTORY (Paris), 309-10
 THORNABY; *see* BRITISH AIR FORCE, STATIONS
 THORNABY BAG, air-sea rescue equipment, 290
 THORNEY ISLAND; *see* BRITISH AIR FORCE, STATIONS
 THORNLEY, F-O F. T., 513
 THOROLD-SMITH, Sqn Ldr R. E., 134, 136, 137*n*, 138, 142, 143, 341, 344
 THORPE, F-Lt W. P., 293
Thorsheimer, German transport, 397
 THRELKELD, F-O T. L., 218
Thunderbolt, British submarine, 42*n*
 THURSTON, W Cdr G. R., 157, 158, 162, 165
 THYSSEN STEELWORKS (Duisburg), 327
 THYSSEN STEELWORKS (Hamborn), 324
 TIBERIAS, LAKE (Map p. 90), 88
 TIERGARTEN (Berlin; Plate p. 654), 641
Times, *The* (London), 269
 THREE; *see* BRITISH AIR FORCE, STATIONS
Tirpitz, German battleship, 266, 268*n*, 274, 296; attacked, 334
 TMIMI (Map p. 203), 208, 215, 218, 222, 235
 TMIMI AIRFIELD (Maps pp. 61, 233), 196; No. 3 Squadron moves to, 67; attacked, 231-2
 TOBRUK (Maps pp. 61, 212, 233), 63, 64, 73, 74, 80, 101, 102, 196, 199, 209, 214, 216, 219*n*, 223, 241, 242, 246, 249, 253, 255, 256, 257, 259, 260, 261, 360, 361, 362, 363, 366, 367, 368, 372, 373, 376, 382; capture of, 65, 66; air defence of, 69; siege of, 72, 86, 87, 104, 105, 193*n*, relief of, 200, 205, 206; importance in Gazala line, 220; radar at, 200, 224; fall of, 243; British air attacks on, 359; recapture of, 375
 TOBRUK-BARDIA ROAD, 65
 TOCRA (Map p. 212), 215
 TODT ORGANISATION, 416, 472

- TOKYO, 238*n*
 "TORCH" OPERATION; *see* AFRICAN CAMPAIGNS, NORTH-WEST AFRICA
 TORPEX, 271, 286; efficiency of, 274, 275*n*
 TOUJANE (Map p. 399), 403
 TOULON (Map p. 412), 412
 TOURS, OPERATIONAL, in metropolitan squadrons, 533*n*
 TOWERS, Admiral J. H., 416*n*
 TOZER, P-O C. F., 481
 TRAFALGAR, BATTLE OF, 34
 TRAFALGAR, CAPE (Map p. 412), 277
 TRAPANI (Map p. 565), 398
 TRANENT, F-Sgt K. M., Plate p. 639
 TRANSCAUCASIA, 360
 TRANSJORDAN (Map p. 90), 54
 TRANSJORDAN-DAMASCUS RAILWAY (Map p. 90), 88
 TRAVE RIVER (Map p. 318), 311
 TREATIES: 1936 Anglo-Egyptian, 53; Tripartite, 357*n*
 TRENCHARD, Marshal of the RAF Viscount, 169
 TRIAD, British submarine, 12
 TRICQUEVILLE AIRFIELD (Map p. 504), attacked, 509, 513
 TRIDENT CONFERENCE; *see* QUEBEC CONFERENCE
 TRIGGS, F-Lt A. W. R., 283, 284, 290-2, 417, 421
 TRIGH EL ABD (Map p. 212), 199, 202, 207
 TRIKKALA AIRFIELD (Map p. 81), 78, 82
 TRIMBLE, F-O T. H., Plate p. 78
 TRINIDAD (Map p. 270), 287, 420
 TRIPOLI (Syria; Map p. 90), 93, 250
 TRIPOLI (Maps pp. 258, 399, 412), 62*n*, 68, 102, 213, 216, 220, 222, 248, 367, 382, 385, 391, 395, 400, 401, 408, 567, 572; air attacks on, 60, 71, 72, 81, 226, harbour mined, 103; Germans arrive at, 70
 Tripolino, Italian merchantman, 367, 373
 TRIPOLITANIA (Map p. 412), 69, 70, 193, 214, 376, 382, 385, 411
 TROBE, Sqn Ldr J. H., 604
 TROINA (Map p. 565), 575
 TRONDHEIM (Map p. 278), 266, 279, 334
 Tropic Sea, Norwegian merchantman, 40
 Truant, British submarine, 40
 TRUSCOTT, Sqn Ldr K. W. (Plates pp. 143, 526), 134, 135, 136, 137, 138, 140, 142, 143, 268, 341, 343, 344; estimate of, 139
 TULLOCH, F-O C. F. L., 12, 17
 TUMMAR (Map p. 61), 62
 TUNIS (Maps pp. 258, 399, 412), 379, 382, 385, 398, 401, 406, 563, 567; bombed, 381; captured, 409
 TUNIS, GULF OF, 407
 TUNISIA (Maps pp. 399, 412), 6, 381, 382, 388, 391, 396, 401, 404, 406, 407, 408, 412, 560, 561, 565, 571; French air force in, 54; German reinforcement of, 379; German air force in, 380, 386
 TURIN (Map p. 590), 577*n*; attacked, 19, 172, 462-5, 511, 590
 TURKEY (Maps pp. 81, 90, 258), 54, 77, 80, 141, 193, 560; relations with Great Britain, 76, 78, 79; refuses permission for passage of French troops to Syria, 93*n*
 TURNBULL, F-O J. A., 420, 432
 TURNBULL, Sqn Ldr P. St G. B. (Plates pp. 46, 78), 91, 93, 94
 TURNCHAPEL OIL TANKS (Plate p. 46), 44
 TURNER, L. C. F., 240*n*
 TWEDDALE, P-O G. R., 228, 229
 TWENLOW, F-Lt F. M., 207, 209, 214, 235
 TWIGG, F-Sgt G. E., 419
 TYNESIDE (Map p. 342), 339
 TYRE (Map p. 90), 89
 TYRRHENIAN SEA (Map p. 565), 397, 579
 U-26, German submarine (Plate p. 15), 26
 U-51, German submarine, 42*n*
 U-57, German submarine (Plate p. 271), 283*n*
 U-97, German submarine, 568-9
 U-105, German submarine, 284
 U-106, German submarine (Plate p. 431), 444
 U-109, German submarine, 431
 U-119, German submarine, 429*n*
 U-134, German submarine, 620
 U-162, German submarine, 286
 U-167, German submarine, 427-8
 U-194, German submarine, 439
 U-206, German submarine, 163
 U-227, German submarine, 431, 614
 U-266, German submarine, 432
 U-280, German submarine, 626
 U-332, German submarine, 430
 U-389, German submarine, 622
 U-419, German submarine, 622
 U-426, German submarine (Plate p. 622), 628-9
 U-447, German submarine, 431
 U-454, German submarine, 443
 U-461, German submarine, 442
 U-470, German submarine, 623
 U-545, German submarine, 633
 U-552, German submarine, 435*n*
 U-563, German submarine, 435-6
 U-564, German submarine, 439
 U-570, German submarine, 150
 U-571, German submarine, 629
 U-632, German submarine, 427
 U-643, German submarine, 623
 U-751, German submarine, 287
 U-976, German submarine, 633
 Una, Italian merchantman, 368
 UNIAI; *see* ST UNIAI
 Unione, Italian merchantman, 367
 UNITED KINGDOM; *see* BRITAIN, GREAT
 UNITED STATES ARMY AIR FORCE; *see* AMERICAN AIR FORCE
 UNITED STATES OF AMERICA; *see* AMERICA, UNITED STATES OF
 UNITED STATES NAVY; *see* AMERICAN NAVY
 UPLANDS (Canada); *see* CANADIAN AIR FORCE, STATIONS
 USHANT ISLAND (Maps pp. 13, 153), 46, 266, 289, 419
 USTICA ISLAND (Map p. 565), 397
 UTZ, Sqn Ldr E. A. G., 645, 662
 UXBRIDGE; *see* BRITISH AIR FORCE, STATIONS
 VAENGA (Map p. 296), 295, 297
 VAERST, General von, 403*n*
 VALETTA (Map p. 565), 227
 Vallant, British battleship, 226, 569
 VALLEY; *see* BRITISH AIR FORCE, STATIONS
 VALONA (Maps pp. 81, 258), 85; attacked, 78, 81, 83; Greeks plan capture of, 83
 VANCE, F-Lt T. A., 511
 Vanoc, British destroyer, 166
 VENICE, GULF OF (Map p. 590), 577*n*
 Veniere, Italian submarine, 285*n*
 VENLO (Holland), 142
 VEREINIGTE STAHLWERKE FACTORIES (Duisburg), 483
 VERNON, W Cdr D., 276, 288
 Verona, Italian merchantman, 397*n*
 VICKERS, F-O J. W., 265
 VICTORIA CROSS, awarded to W Cdr H. I. Edwards, 192, to Lt-Cdr E. Esmonde, 267, to P-O R. H. Middleton, 463-4
 VILLACOUBLAY AIRFIELD (Map p. 504), 512
 VILLANO, CAPE (Map p. 13), 277
 VINCENT, W Cdr N. F., 567
 VIRGINIA (U.S.A.), 263
 Visiting Forces Act, 98*n*
 VISTULA RIVER (Poland), 141
 VOGELHEIM (Essen suburb), 483
 WADDINGTON; *see* BRITISH AIR FORCE, STATIONS
 WADDY, Gp Capt J. L., 208, 209, 231
 WADI NATRUN; *see* BRITISH AIR FORCE, STATIONS
 WALCH, F-Lt S. C. (Plate p. 46), 36
 WALCHEREN ISLAND (Map p. 504), 508, 513
 WALDAU, Lt-Gen Hoffman von, 257*n*
 WALES, F-Lt A. W., 333
 WALKER, Sqn Ldr C. B., 423, 439-40, 618
 WALLER FIELD (Trinidad), 287
 WALSH, Sqn Ldr K. H., 19
 WALSH, F-Lt E. P., 294-5
 WARNEUNDE (Map p. 318), 313-14
 WARSAW, 141
 WARSAW-PARIS, "underground railway", 141
 Warspite, British battleship, 569
 WARWICKSHIRE, 131
 WASHINGTON, 281, 385, 387, 424
 WATSON, W-O B. A., 579
 WATSON, F-Lt C. B., 351
 WATSON, Sqn Ldr J. H. F., 291
 WATSON, F-Lt P. H., 348
 WAVELL, Field Marshal Rt Hon Earl, 30, 57, 65, 100*n*, 220*n*; plans attacks in Western Desert, 55, 59-60; offers aid to Greece, 69; Army Council instructions to, 76; ordered to visit Greece, 78; negotiates with General Dentz, 87

- WAWN, F-Lt C. N., 138, 341, 343, 344
 WEARNE, W Cdr A. G. H., 157, 161, 165
 WEATHERLAKE, F-Lt J. G. P., 434
 WEBB, F-Lt H. N., 432, 622, 623
 WEDEL (Map p. 318), 471
 WEICHOLOD, Vice-Admiral E., 219*n*, 222*n*, 226*n*, 252*n*, 358*n*, 361*n*, 367
Welshman, British mine-layer, 229
 WELSHMAN, Sqn Ldr S. G., 248, 564*n*
Weserland, German blockade runner, 627
 WESER VALLEY (Map p. 318), attacks on dams in, 492, 495
 WEST AFRICA, 47-8, 124, 287
 WESTERN APPROACHES (Maps pp. 13, 164), 15, 22
 WESTERN DESERT (Plate p. 79), 55-6, 95, 193, 196, 210, 222, 248, 250, 255, 361, 370, 376, 392, 502; campaigns in, 59, 87, 104
 WESTERN DESERT COMMAND; *see* BRITISH AIR FORCE, MIDDLE EAST
 WESTERN ISLES (Scotland), 38*n*
 WEST INDIES, 117
 WEST MALLING; *see* BRITISH AIR FORCE, STATIONS
 WEVELGHEM; *see* COURTRAI-WEVELGHEM
 WHALES, mistaken for submarines, 286
 WHARTON, W Cdr A., 360
 WHEELER, F-Lt D. J., 331
 WHILLANS, P-O R. H., Plate p. 143
 WHITE, Sgt C. H., 217*n*
 WHITE, Sqn Ldr H. D., 418
 WHITE, Gp Capt Rt Hon Sir Thomas, 530; effects reforms at Bournemouth, 124-6; on RAAF promotion policy, 127; Australian liaison officer in Flying Training Command, 478, 539, 541, 542-3; improves Australian quarters at 3 PRC, 528, 529; commands RAF Station, Brighton, 551
 WHITELEY, Gp Capt E. A., 56
 WHITE SEA (Map p. 296), 297
 WHITING, F-Lt J. H., 601
 WHITTALL, F-Lt J. C., 85
 WHITTLE, Sqn Ldr R. J. C., 105, 207, 209
 WICK; *see* BRITISH AIR FORCE, STATIONS
 WICKS, W-O R. R., 595
 WIESBADEN (Map p. 318), 331
 WIGGINS, W Cdr A. L., 359, 372, 373, 617
 WIGHT, ISLE OF (Maps pp. 13, 132), 355, 516
 WIGSLEY; *see* BRITISH AIR FORCE, STATIONS
 WIGTOWN; *see* BRITISH AIR FORCE, STATIONS
 WILD, F-Lt R. A., 373
Wild Swan, British sloop, 285
 WILHELMSHAVEN (Maps pp. 318, 656), 9, 10, 185, 299, 311; attacked, 186, 188, 314, 320, 471-2, 589
 WILHELMSTRASSE (Berlin), 641
 WILKIE, P-O J. L., 20
 WILKINSON, Sgt W. J., Plate p. 143
 WILLIAMS, F-Lt B. A., 441, 625
 WILLIAMS, Sqn Ldr J. E. A., 243, 365, 372
 WILLIAMS, Sqn Ldr N. F., 490
 WILLIAMS, Air Marshal Sir Richard (Plate p. 526), 8, 119, 120, 123, 128, 390, 528, 529, 536, 543; commands Overseas HQ RAAF, 118; visits Cairo, 122; obtains approval to end segregation policy, 421; on Middle East and U.K. administra-
- WILLIAMS, Air Marshal Sir Richard—*continued*
 tive problems, 534; Air Board widens powers of 538; plans Australian Bomber group, 452-5 478, 503*n*, 612, 636
 WILLIAMS, W Cdr R. D., 198, 202
 WILLIAMS, F-Lt R. R., 341
 WILLIAMS, F-Lt Richard S., combat report, 517
 WILLIAMS, W-O Robert S., 508
 WILLIAMTOWN; *see* AUSTRALIAN AIR FORCE, STATIONS
 WILLIS, F-O W. D., 136, 137
 WILLS, F-Lt D. B., 339
 WILSON, Field Marshal Lord, 87
 WILSON, Air Cmdr D. E. L., 454, 551*n*
 WILSON, Sgt R. K. (Plate p. 78), 93, 206
 WILSON, F-Lt W. L., 600
 WINCHESTER (Map p. 504), 518
Winchester Castle, British merchantman, 287
 "WINDOW", anti-radar device, 585
 WINDSOR, P-O G. P., 280
 WINTEN, Sqn Ldr L. D'A., 63
 WIRREN, HILL OF (Map p. 278), 612
 WITHECOMB, F-Lt J. E., 397
 WITNEY, F-Lt R. C., 316
 WITTEN (Map p. 480), 489
 WOENSDECHT AIRFIELD (Map p. 504), 512
 WOLFE, W Cdr E. C., 338; combat report, 339-40
 WOOD, F-O J. K. (Plate p. 239), 361
 WOOD, W Cdr S. R. C. (Plate p. 271), 283, 293, 421, 423
 WOODS, F-O C. W., 328
 WOODS, Sgt L. R., Plate p. 639
 WOOLFORD, F-Lt R. G., 413, 422
Wren, British sloop, 443
 WRIGHT, F-Lt W. H., 345
 WRIGLEY, AVM H. N. (Plate p. 526), 543, 558; inspects units in Middle East, 557; agrees to non-Australian crews for No. 455 Squadron, 616
 WUPPERTAL (Map p. 480), 488-9
 WURM SEE (Map p. 318), 469, 598
 "WURZBURGS"; *see* RADAR, GERMAN
- YANNINA AIRFIELD (Map p. 81), 78, 80, 82, 83, 85
 YARRA, F-Lt J. W., 239, 251, 349, 353
 YEOMAN, F-Lt E. St C., 284, 286, 288, 290
 YORKSHIRE, 180, 451, 529, 603, 659
 YOUNG, P-O I. C., 218, 230, 231
 YOUNG, Gp Capt R. H., 452, 457, 460
 YPRES (Maps pp. 342, 504), 352, 509
 YUGOSLAVIA (Map p. 81), 76, 79; collapse of, 85; at May 1942 EATS Conference, 530*n*
 YVRENCH (Map p. 504), 507
- ZAGHOUAN (Map p. 399), 409
 ZARZIS (Map p. 399), 401
 ZAUFT TERT (Map p. 61), 67
 ZEEBRUGGE (Maps pp. 318, 504), 512; attacked, 459, 509, 512
 ZEISS FACTORY (Jena), 461
 ZEMBRA ISLAND (Map p. 399), 408
 ZEMZEM, WADI (Map p. 399), 400
 ZEPPELIN WORKSHOPS (Friedrichshafen), 500
 ZUARA (Map p. 399), 401; Nos. 3 and 450 Squadrons at, 567